

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Carrie Thompson Examiner #: 792114 Date: 3/13/05
 Art Unit: 1774 Phone Number 301 7230 Serial Number: 200510118, 360,
 Mail Box and Bldg/Room Location: 10078 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc. if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

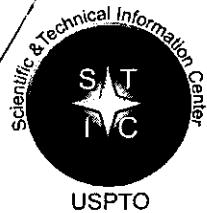
Title of Invention: Organic electroluminescent element display
 Inventors (please provide full names): Mitsuharu Fukada; Hiroshi Kita;
Takatoshi Yamada

Earliest Priority Filing Date: 11/26/02

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please do a search on claims 1-12
 Thanks

*****		*****		*****	
STAFF USE ONLY		Type of Search		Vendors and cost where applicable	
Searcher:	<u>Usha</u>	NA Sequence (#)		STN	<u>A 461 - 90</u>
Searcher Phone #:		AA Sequence (#)		Dialog	
Searcher Location:		Structure (#)	<u>1</u>	Questel/Orbit	
Date Searcher Picked Up:	<u>3/22/05</u>	Bibliographic		Dr. Link	
Date Completed:	<u>3/22/05</u>	Litigation		Lexis/Nexis	
Searcher Prep & Review Time:	<u>60</u>	Fulltext		Sequence Systems	
Clerical Prep Time:	<u>30</u>	Patent Family		WWW/Internet	
Online Time:	<u>120</u>	Other		Other (specify)	<u>15</u>



STIC Search Report

EIC 1700

STIC Database Tracking Number: 147758

TO: Camie Thompson
Location: REM 10D78
Art Unit : 1774
March 22, 2005

Case Serial Number: 10/718360

From: Usha Shrestha
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-3519
usha.shrestha@uspto.gov

Search Notes



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact **the EIC searcher or contact:**

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

➤ I am an examiner in Workgroup: Example: 1713

➤ Relevant prior art **found**, search results used as follows:

- 102 rejection
- 103 rejection
- Cited as being of interest.
- Helped examiner better understand the invention.
- Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- Foreign Patent(s)
- Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- Results verified the lack of relevant prior art (helped determine patentability).
- Results were not useful in determining patentability or understanding the invention.

Comments:

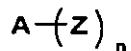
Drop off or send completed forms to EIC1700 REMSEN 4B28



What is claimed is:

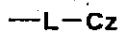
1. An organic electroluminescent element comprising a component layer including a light emission layer, wherein the light emission layer contains a phosphorescent compound, and the component layer contains a compound represented by the following formula 1,

Formula 1



wherein A represents a substituted or unsubstituted aromatic ring residue; n is a natural number of from 3 to 6; and Z represents a monovalent organic group represented by the following formula 2, provided that formula 1 does not have an n-fold axis of symmetry,

Formula 2



wherein L represents a chemical bond or a divalent linkage group; and Cz represents a substituted or unsubstituted carbazole residue.

2. The organic electroluminescent element of claim 1, wherein the light emission layer contains the compound of formula 1.

3. The organic electroluminescent element of claim 1,
wherein n in formula 1 is 3, provided that the formula 1 does
not have a 3-fold axis of symmetry.

4. The organic electroluminescent element of claim 1,
wherein the aromatic ring of the aromatic ring residue
represented by A of formula 1 is an aromatic ring selected
from the group consisting of a benzene ring, a pyridine ring,
a pyridazine ring, a pyrimidine ring, a pyrazine ring, a
1,3,5-triazine ring, a 1,2,4-triazine ring, a pyrrole ring,
an imidazole ring, a furan ring, a thiophene ring, and a
condensed aromatic ring which two or more thereof are
condensed to form.

5. The organic electroluminescent element of claim 1,
wherein in formula 1, at least one Z has a chemical structure
different from that of another Z.

6. The organic electroluminescent element of claim 4,
wherein the aromatic ring of the aromatic ring residue is a
benzene ring, a pyridine ring, or a 1,3,5-triazine ring.

7. The organic electroluminescent element of claim 1,
wherein in formula 2, L is a chemical bond or a group
selected from the group consisting of arylene, heteroarylene,
alkenylene and -Si(R)₂- in which R represents an alkyl group
a cycloalkyl group, an alkenyl group, an alkinyl group, an

aryl group, a heteroaryl group, a saturated heterocyclic group or a halogenated hydrocarbon group.

8. The organic electroluminescent element of claim 7, wherein L is a chemical bond.

9. The organic electroluminescent element of claim 1, wherein the phosphorescent compound is a complex containing a metal belonging to a group VIII of the periodic table as a center metal or a complex containing a rare earth element as a center element.

10. The organic electroluminescent element of claim 9, wherein the phosphorescent compound is an iridium complex, an osmium complex, or a platinum complex.

11. The organic electroluminescent element of claim 10, wherein the phosphorescent compound is an iridium complex.

12. A display comprising the organic electroluminescent element of any one of claims 1 through 11.

=> fil reg

FILE 'REGISTRY' ENTERED AT 15:00:47 ON 22 MAR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 American Chemical Society (ACS)

=> d his ful

FILE 'HCAPLUS' ENTERED AT 13:03:36 ON 22 MAR 2005
L1 1 SEA ABB=ON PLU=ON US20040110031/PN
D SCAN
SEL RN

FILE 'REGISTRY' ENTERED AT 13:04:02 ON 22 MAR 2005
L2 33 SEA ABB=ON PLU=ON (202865-85-8/BI OR 2408-70-0/BI OR
343978-79-0/BI OR 36847-11-7/BI OR 376367-93-0/BI OR
56525-79-2/BI OR 626-39-1/BI OR 6825-20-3/BI OR
699119-05-6/BI OR 699119-10-3/BI OR 699119-14-7/BI OR
699119-23-8/BI OR 699119-26-1/BI OR 699119-32-9/BI OR
699119-36-3/BI OR 699119-40-9/BI OR 699119-44-3/BI OR
699119-49-8/BI OR 699119-54-5/BI OR 699119-58-9/BI OR
699119-61-4/BI OR 699119-65-8/BI OR 699119-69-2/BI OR
699119-73-8/BI OR 699119-77-2/BI OR 699119-81-8/BI OR
699119-86-3/BI OR 699119-91-0/BI OR 699119-96-5/BI OR
699120-00-8/BI OR 86-74-8/BI OR 94928-86-6/BI OR
98-80-6/BI)
D SCAN

FILE 'LREGISTRY' ENTERED AT 13:13:28 ON 22 MAR 2005
L3 STR
L4 STR L3

FILE 'REGISTRY' ENTERED AT 13:46:19 ON 22 MAR 2005
L5 50 SEA SSS SAM L4
D QUE STAT L5
L6 2316 SEA SSS FUL L4
SAV L6 THM360/A

FILE 'HCAPLUS' ENTERED AT 13:58:56 ON 22 MAR 2005
L7 1026 SEA ABB=ON PLU=ON L6
L8 82967 SEA ABB=ON PLU=ON (ELECTROLUM!N? OR ORGANOLUM!N? OR
(ELECTRO OR ORGANO OR ORG#) (2A)LUM!N? OR LIGHT?(2A)(EMI
T? OR EMISSION?) OR EL OR E(W)L OR L(W)E(W)D OR
OLED)/IB,AB OR LED/IT
L9 11 SEA ABB=ON PLU=ON L7(L)L8

D FHITSTR
L10 254 SEA ABB=ON PLU=ON L7 (L) DEV/RL
L11 61 SEA ABB=ON PLU=ON L10 (L) PREP/RL
L12 41 SEA ABB=ON PLU=ON L11 AND L8
L13 31 SEA ABB=ON PLU=ON L12 AND OPTIC?/SC
D FHITSTR
D FHITSTR 2-5
L14 40 SEA ABB=ON PLU=ON L9 OR L13
L15 1 SEA ABB=ON PLU=ON L14 AND L1
SEL L14 HIT RN 1-

FILE 'REGISTRY' ENTERED AT 15:00:47 ON 22 MAR 2005

FILE HCAPLUS

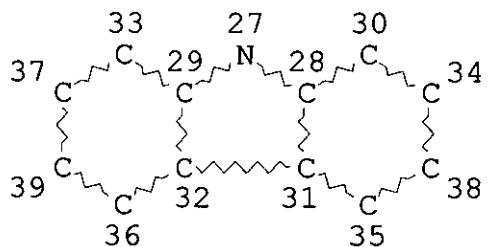
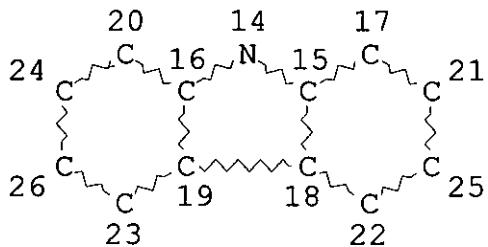
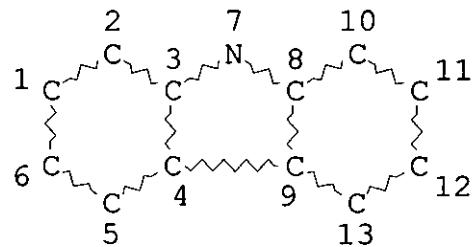
Copyright of the articles to which records in this database refer held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storage of this information, without the prior written consent of CAS, is strictly prohibited.

FILE REGISTRY

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

FILE LREGISTRY
LREGISTRY IS A STATIC LEARNING FILE

=> d que stat 17
L4 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 39

STEREO ATTRIBUTES: NONE

L6 2316 SEA FILE=REGISTRY SSS FUL L4
L7 1026 SEA FILE=HCAPLUS ABB=ON PLU=ON L6

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 15:01:27 ON 22 MAR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

=> d 114 1-40 ibib abs hitstr hitind

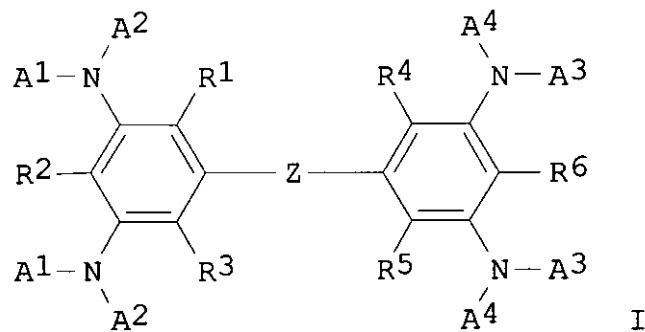
L14 ANSWER 1 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:155660 HCAPLUS
DOCUMENT NUMBER: 142:248684

USHA SHRESTHA REM 4B28

TITLE: Tetraaminobiphenyls, their charge transporting
 or electroluminescent materials, and organic
 electroluminescent devices using them
 INVENTOR(S): Yabe, Masayoshi; Shiotani, Takeshi; Sato,
 Hideki; Akiyama, Seiji
 PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 53 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005047811	A2	20050224	JP 2003-202925	2003 0729
PRIORITY APPLN. INFO.:			JP 2003-202925	2003 0729

GI



AB The tetraaminobiphenyls are I (A1-A4 = substituent; Z = direct bond, linkage; R1-R6 = H, substituent; A1A2 and A3A4 may form ring). The tetraaminobiphenyls show good heat resistance, and electrolytic oxidation and reduction resistance. Thus, an organic

electroluminescent device having an emitter layer containing I
 (R₁ = R₂ = R₃ = R₄ = R₅ = R₆ = H, NA1A2 = NA3A4 = N-carbazolyl)
 and organic Ir complex dopant was exemplified.

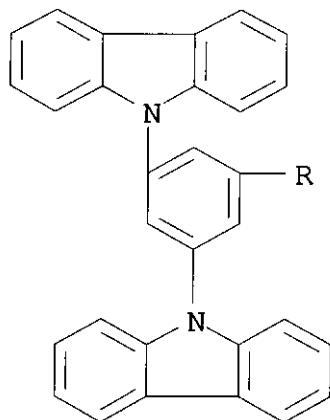
IT **750573-34-3P 845647-08-7P**

(tetraaminobiphenyls as charge transporting or
 electroluminescent materials for organic electroluminescent
 devices)

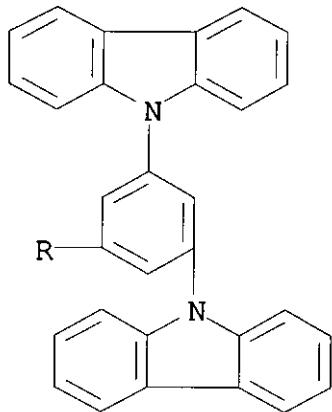
RN 750573-34-3 HCPLUS

CN 9H-Carbazole, 9,9',9'',9'''-[1,1'-biphenyl]-3,3',5,5'-
 tetrailtetrakis- (9CI) (CA INDEX NAME)

PAGE 1-A

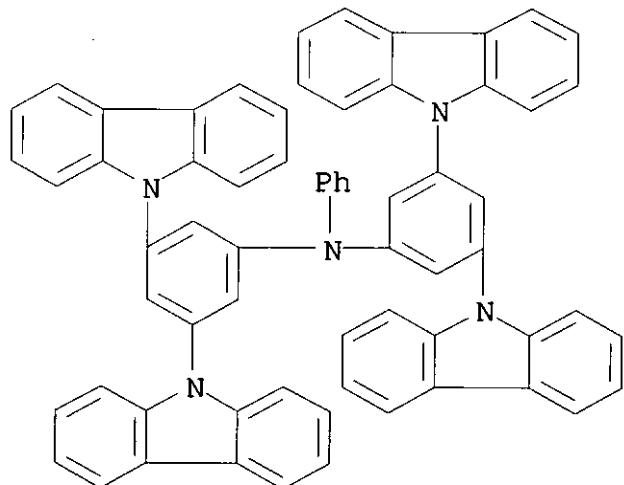


PAGE 2-A



RN 845647-08-7 HCPLUS

CN Benzenamine, N-[3,5-bis(9H-carbazol-9-yl)phenyl]-3,5-bis(9H-carbazol-9-yl)-N-phenyl- (9CI) (CA INDEX NAME)



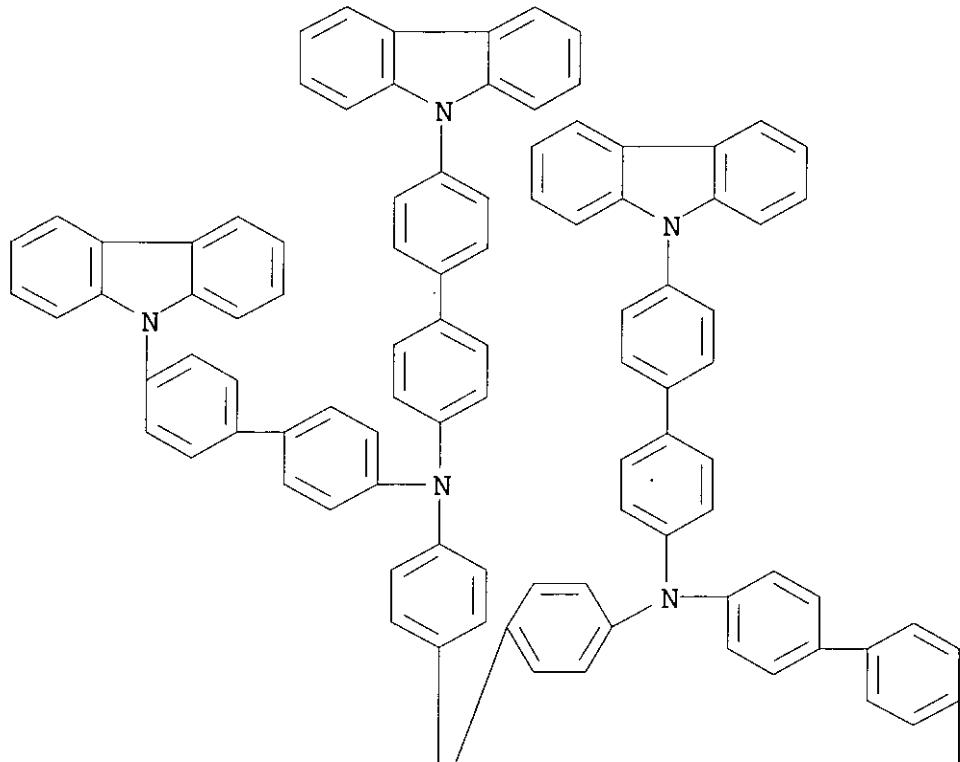
IC ICM C07C211-54

CC ICS C07C211-58; C07C211-61; C07D209-86; C09K011-06; H05B033-14
73-11 (Optical, Electron, and Mass Spectroscopy and
Other Related Properties)IT Section cross-reference(s): 27
750573-34-3P 845647-08-7P

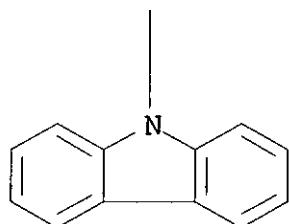
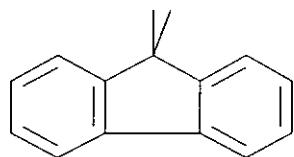
(tetraaminobiphenyls as charge transporting or electroluminescent materials for organic electroluminescent devices)

L14 ANSWER 2 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:1152881 HCAPLUS
TITLE: Synthesis of thermally stable and hole-transporting amorphous molecule having four carbazole moieties
AUTHOR(S): Nomura, Masayoshi; Shibasaki, Yuji; Ueda, Mitsuru; Tugita, Kouhei; Ichikawa, Musubu; Taniguchi, Yoshio
CORPORATE SOURCE: Department of Organic and Polymeric Materials, Graduate School of Science and Engineering, Tokyo Institute of Technology, Meguro-ku, Tokyo, 152-8552, Japan
SOURCE: Synthetic Metals (2005), 148(2), 155-160
CODEN: SYMEDZ; ISSN: 0379-6779
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A novel thermally stable and hole-transporting amorphous mol., 9,9-bis(4-[bis-(4'-carbazol-9-yl-biphenyl-4-yl)-amino]-phenyl)fluorene (T-Caz) was synthesized in two-step reactions from carbazole. T-Caz showed UV-visible absorption bands at 290 and 340 nm in CHCl₃ solution, and the photoluminescence spectrum showed a maximum peak at 420 nm in a purplish blue region. DSC showed a high glass transition temperature at 250°. The organic **light-emitting** device prepared by spin-coating T-Caz solution onto the In-Sn oxide (ITO)-coated glass substrate in conjunction with tris(8-quinolinolato)aluminum (Alq) and LiF/Al, as an electron transporting light-emissive layer and a metal cathode, resp., showed a maximum luminescence of 10,300 cd/m² at 11 V.
IT **845834-57-3P**
(synthesis of thermally stable and hole-transporting amorphous mol. having four carbazole moieties)
RN 845834-57-3 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED

PAGE 1-A



PAGE 2-A



CC 73-11 (**Optical, Electron, and Mass Spectroscopy and
Other Related Properties**)

Section cross-reference(s): 77, 22

IT **845834-57-3P**

(synthesis of thermally stable and hole-transporting amorphous

mol. having four carbazole moieties)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 3 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:1127394 HCAPLUS
 DOCUMENT NUMBER: 142:65033
 TITLE: Metal coordination compound, polymer composition, and organic electroluminescence device using them
 INVENTOR(S): Nomura, Satoyuki; Morishita, Yoshii; Tsuda, Yoshihiro
 PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 148 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
WO 2004111066	A1	20041223	WO 2004-JP8392	2004 0609
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
JP 2005023070	A2	20050127	JP 2004-171194	2004 0609
JP 2005023071	A2	20050127	JP 2004-171228	2004 0609

JP 2005023072	A2	20050127	JP 2004-171704	
				2004
PRIORITY APPLN. INFO.:				0609
			JP 2003-164321	A
				2003
				0609
			JP 2003-164328	A
				2003
				0609
			JP 2003-164340	A
				2003
				0609

GI

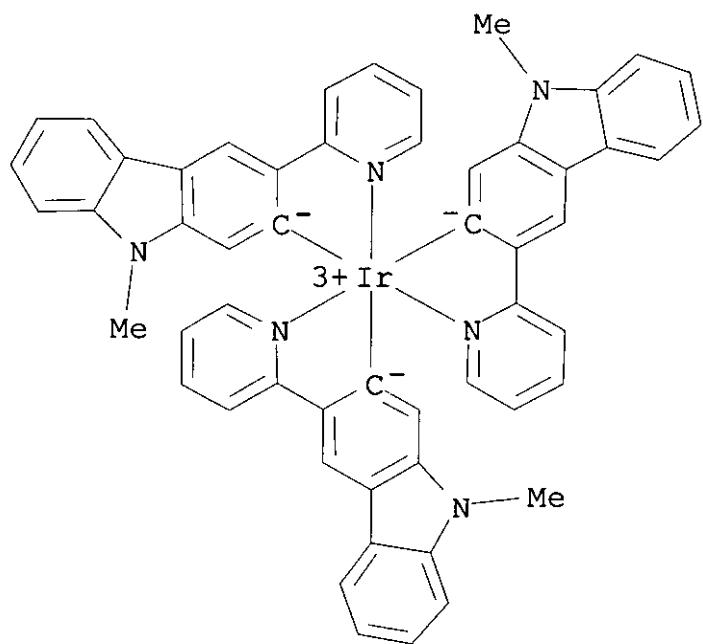
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
 *

AB A metal coordination compound, characterized in that it is represented by I, II, III, IV, V and VI, [B = >NR, >O, >S, >C=O, >SO₂, and >CR₂; M = Ir, Rh, Ru, Os, Pd and Pt; n = 2 and 3; X₁₋₆ = -R₁, -OR₂, -SR₃, etc. (R₁₋₃ = H, halo, -CN, etc.); when M is Ir, Rh, Ru or Os and n is 2, M is further bonded with another bidentate ligand; and the ring A is a cyclic group containing a N atom bonded to M]. And also provided is a phosphorescence emitting material which **emits a light** in a wide visible region from blue to red and also is excellent in the purity of color, reliability and the like.

IT **810660-45-8P 810660-48-1P**
 (phosphorescent metal coordination compound for organic electroluminescence element)

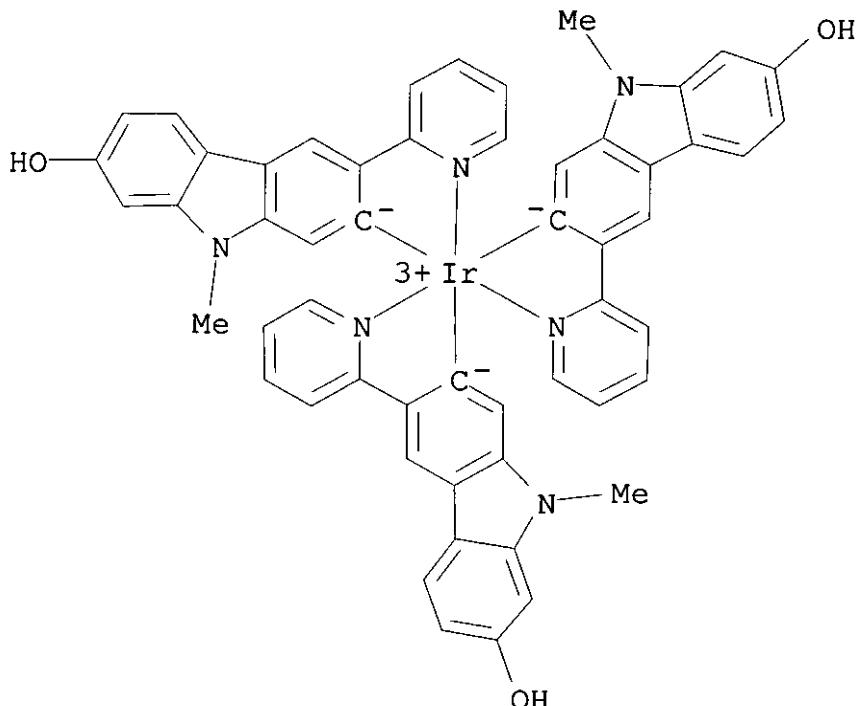
RN 810660-45-8 HCPLUS

CN Iridium, tris[9-methyl-3-(2-pyridinyl-κN)-9H-carbazol-2-yl-κC]- (9CI) (CA INDEX NAME)



RN 810660-48-1 HCAPLUS

CN Iridium, tris[7-hydroxy-9-methyl-3-(2-pyridinyl- κ N)-9H-carbazol-2-yl- κ C]- (9CI) (CA INDEX NAME)



IC ICM C07F015-00

ICS C09K011-06; C08K005-34; C08L101-00; H05B033-14

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 29, 74

IT **810660-45-8P 810660-48-1P 810660-51-6P**

(phosphorescent metal coordination compound for organic electroluminescence element)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 4 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1016012 HCPLUS

DOCUMENT NUMBER: 142:13467

TITLE: Carbazole derivative, organic semiconductor device, light-emitting device, and electronic device

INVENTOR(S): Nomura, Ryoji; Seo, Satoshi; Nakashima, Harue

PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan

SOURCE: PCT Int. Appl., 61 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004101517	A1	20041125	WO 2004-JP6435	2004 0513
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2005031899	A1	20050210	US 2004-839123	2004 0506

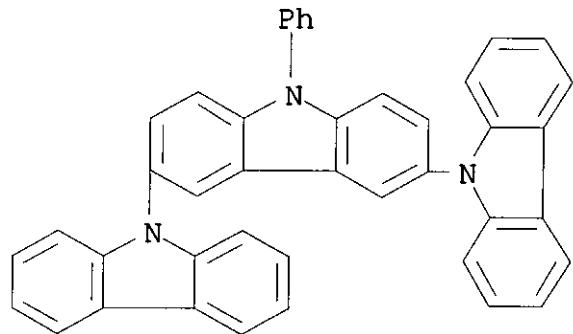
PRIORITY APPLN. INFO.: JP 2003-139432 A
 2003
 0516

AB A carbazole derivative with excellent heat resistance which can be formed into a film without being crystallized is disclosed. An organic semiconductor, a **light-emitting** device and an electronic devices manufactured by using such a carbazole derivative are also disclosed.

IT **211685-96-0P 606129-90-2P, 9,3':6',9''-Ter-9H-carbazole 797057-70-6P**
 (carbazole derivative, organic semiconductor device, light-emitting device, and electronic device)

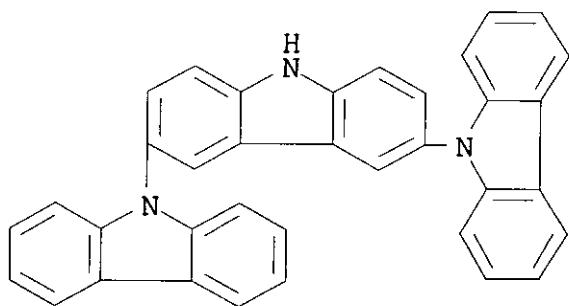
RN 211685-96-0 HCAPLUS

CN 9,3':6',9''-Ter-9H-carbazole, 9'-phenyl- (9CI) (CA INDEX NAME)



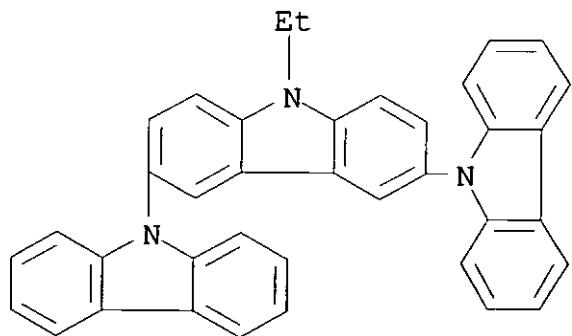
RN 606129-90-2 HCPLUS

CN 9,3':6',9'''-Ter-9H-carbazole (9CI) (CA INDEX NAME)



RN 797057-70-6 HCPLUS

CN 9,3':6',9'''-Ter-9H-carbazole, 9'-ethyl- (9CI) (CA INDEX NAME)



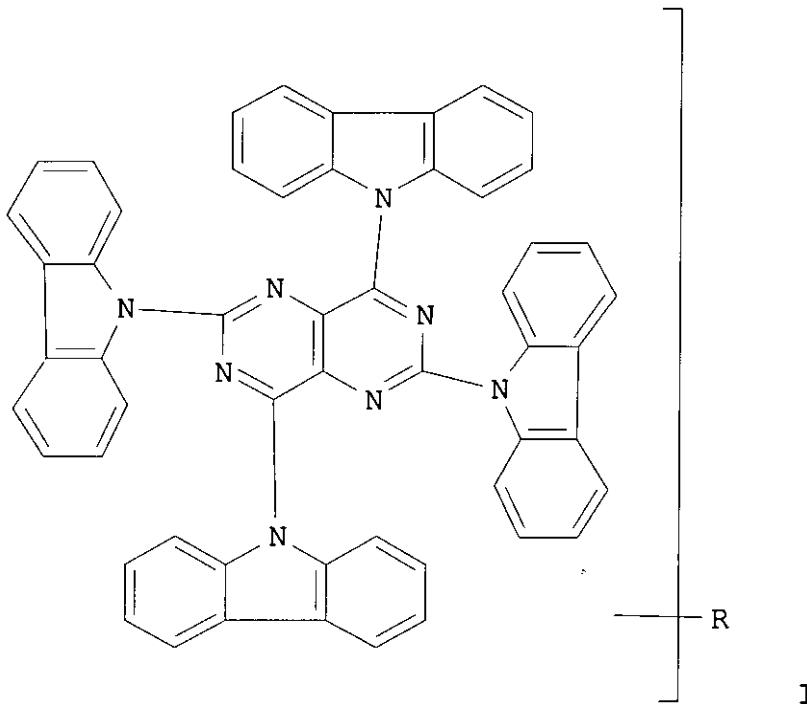
IC ICM C07D209-82
 ICS C07D401-14; C07D403-14; C07D411-14; C07D413-14; C07D417-14;
 C07D487-22; C09K011-06; H01L021-28; H01L029-80; H01L051-00;
 H05B033-14; H05B033-22
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
 Other Related Properties)
 Section cross-reference(s): 22, 76
 IT **211685-96-0P 606129-90-2P, 9,3':6',9'''-Ter-9H-**
carbazole 797057-70-6P
 (carbazole derivative, organic semiconductor device, light-emitting
 device, and electronic device)
 REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L14 ANSWER 5 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:758812 HCPLUS
 DOCUMENT NUMBER: 141:268209
 TITLE: Tetracarbazolylpyrimidopyrimidines, organic
 solvent compositions containing same, and
 electroluminescent devices employing same
 compounds
 INVENTOR(S): Ito, Kiyoshi
 PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	

JP 2004256453	A2	20040916	JP 2003-49593	2003 0226
PRIORITY APPLN. INFO.:			JP 2003-49593	2003 0226

OTHER SOURCE(S): MARPAT 141:268209
 GI

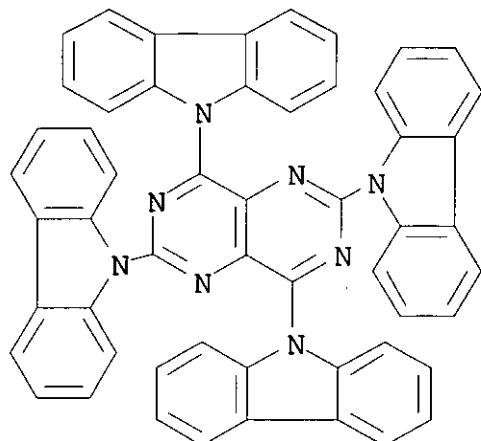


AB Claimed are tetracarbazolylpyrimidopyrimidines I (R = H, alkyl, alkenyl, alkyl ether, alkoxy, amino, etc.; R may be different when multiple R substitute). Also claimed are **electroluminescent** devices containing the compds. as **electroluminescent** materials or as charge-transport materials. Since the compds. show good solubility in organic solvents without crystallization and sublimation, **light-emitting** layers or charge-transport layers including the compds. can be prepared by wet coating process.

IT 755043-06-2DP, derivs.
 (tetracarbazolylpyrimidopyrimidines as light-emitting and/or charge-transport materials in organic EL devices)

RN 755043-06-2 HCAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-pyrimido[5,4-d]pyrimidine-2,4,6,8-tetrayltetrakis- (9CI) (CA INDEX NAME)



IC ICM C07D487-04
 ICS C09K011-06; H05B033-14
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
 Other Related Properties)
 Section cross-reference(s): 28
 IT **755043-06-2DP**, derivs.
 (tetracarbazolylpyrimidopyrimidines as light-emitting and/or
 charge-transport materials in organic EL devices)

L14 ANSWER 6 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:756690 HCPLUS
 DOCUMENT NUMBER: 141:285536
 TITLE: Organic compound and organic
 electroluminescence device
 INVENTOR(S): Okada, Masato
 PATENT ASSIGNEE(S): Dai Nippon Printing Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 87 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
WO 2004078722	A1	20040916	WO 2004-JP2804	2004 0305

W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA,
 BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN,
 CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ,
 EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH,
 GM, HR, HR, HU, HU, ID, IL, IN, IS, KE, KE, KG, KG, KP,
 KP, KP, KR, KR, KZ, KZ, LC, LK, LR, LS, LS, LT, LU,
 LV, MA, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI,
 NI, NO
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW,
 AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,
 HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,
 TG, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,
 SN, TD, TG

JP 2004292436 A2 20041021 JP 2004-62291

2004
0305

PRIORITY APPLN. INFO.: JP 2003-62590

A
2003
0307

JP 2004-62291

A
2004
0305

OTHER SOURCE(S): MARPAT 141:285536

AB The invention relates to an organic compound capable of realizing high luminous efficiency, whose application by coating technique is easy; and an organic **electroluminescence** device of high luminous efficiency in which the organic compound is used. In particular, the organic compound is represented by the formula: EM-X-CTM or (EM-X-CTM)-Y wherein EM represents a fluorescent material or phosphorescent material; CTM represents a charge transporting material; X represents a chemical bond chain linking EM with CTM; and Y represents a substituent for at least enhancing the solvent solubility, introduced in any of the EM, CTM and X moieties. Further, there is provided an organic **EL** device comprising at least 1 pair of facing electrodes and, interposed between the electrodes, a single or multiple organic compound layers, wherein at least 1 of the organic compound layers contains the organic compound represented by the formula: EM-X-CTM or (EM-X-CTM)-Y.

IT 757953-07-4P 757953-09-6P 757953-11-0P

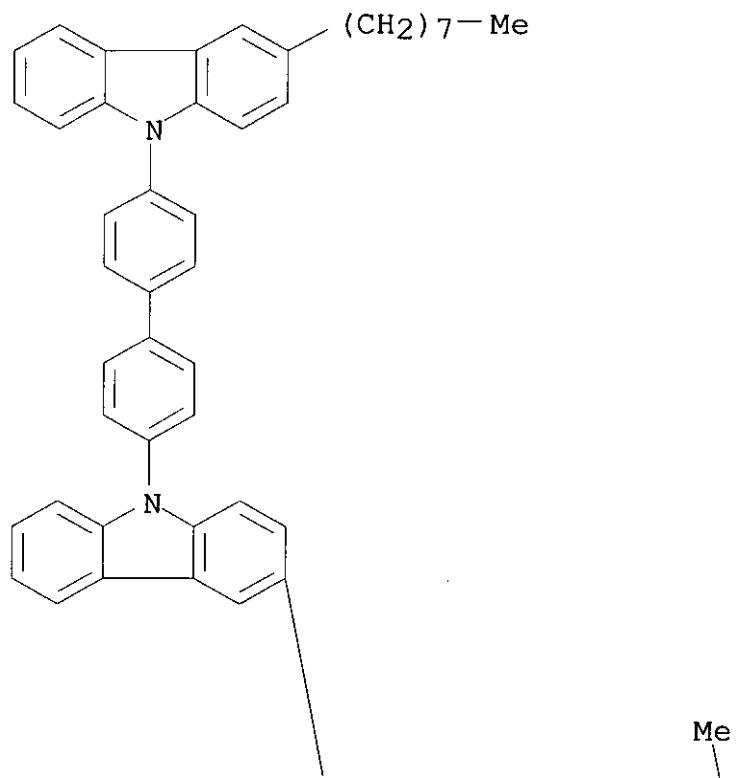
757953-13-2P

(organic compound and organic electroluminescence device)

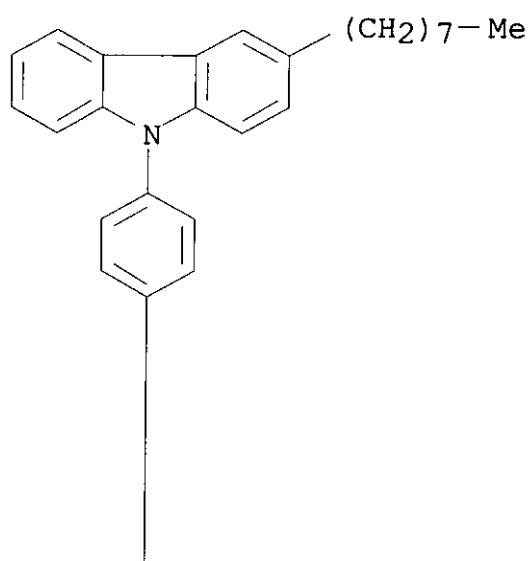
RN 757953-07-4 HCPLUS

CN Iridium, bis[4-[6-[4'-(3-octyl-9H-carbazol-9-yl)[1,1'-biphenyl]-4-yl]-9H-carbazol-3-yl]hexyl]-2-(2-pyridinyl- κ N)phenyl- κ C](2,4-pentanedionato- κ O, κ O')- (9CI) (CA INDEX
NAME)

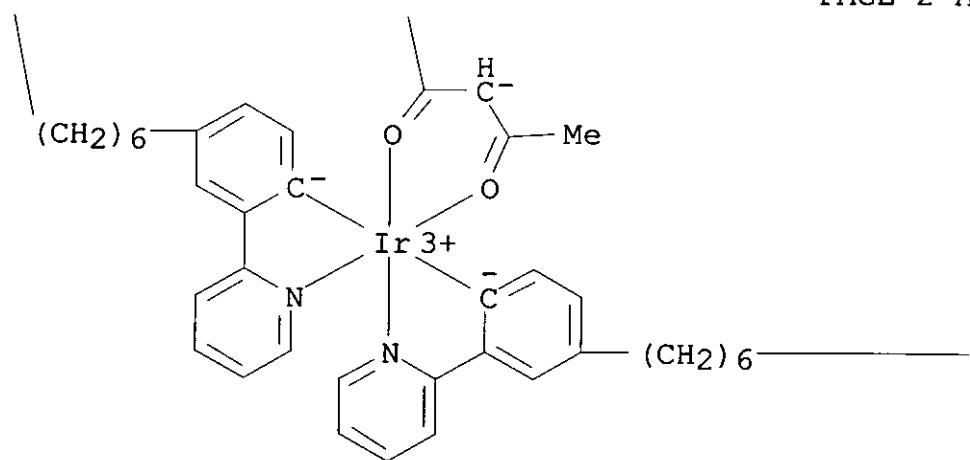
PAGE 1-A



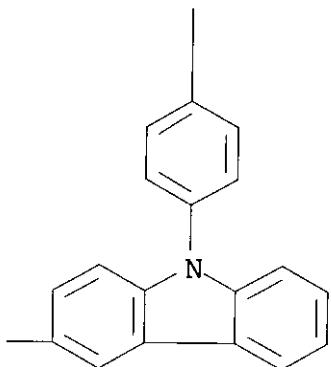
PAGE 1-B



PAGE 2-A



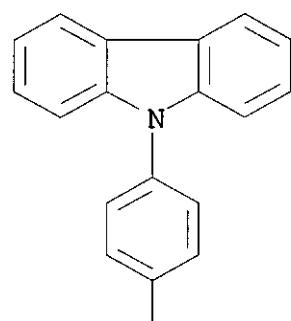
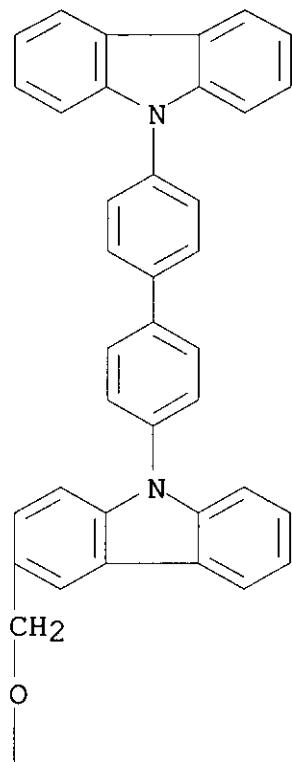
PAGE 2-B



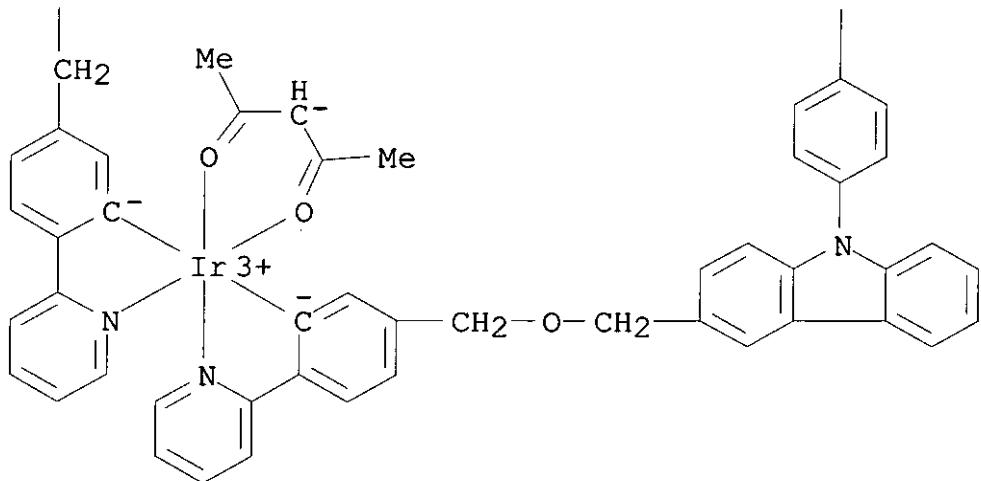
RN 757953-09-6 HCPLUS

CN Iridium, bis[5-[[[9-[4'-(9H-carbazol-9-yl)[1,1'-biphenyl]-4-yl]-9H-carbazol-3-yl]methoxy]methyl]-2-(2-pyridinyl- κ N)phenyl- κ C](2,4-pentanedionato- κ O, κ O')- (9CI) (CA INDEX
NAME)

PAGE 1-A



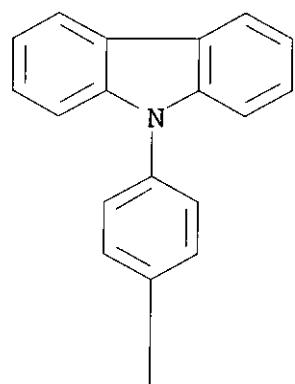
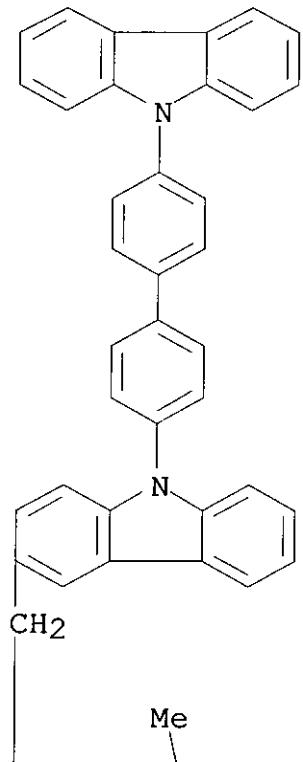
PAGE 2-A



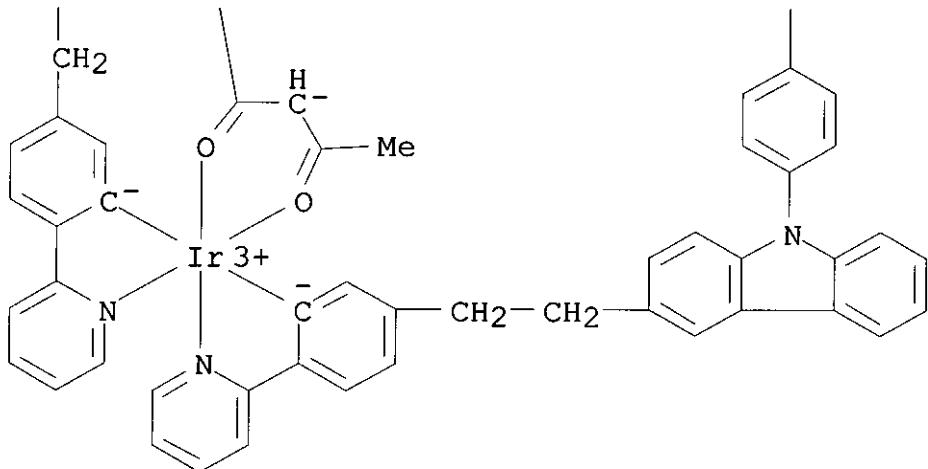
RN 757953-11-0 HCAPLUS

CN Iridium, bis[5-[2-[9-[4'-(9H-carbazol-9-yl)[1,1'-biphenyl]-4-yl]-9H-carbazol-3-yl]ethyl]-2-(2-pyridinyl- κ N)phenyl- κ C](2,4-pentanedionato- κ O, κ O')- (9CI) (CA INDEX NAME)

PAGE 1-A



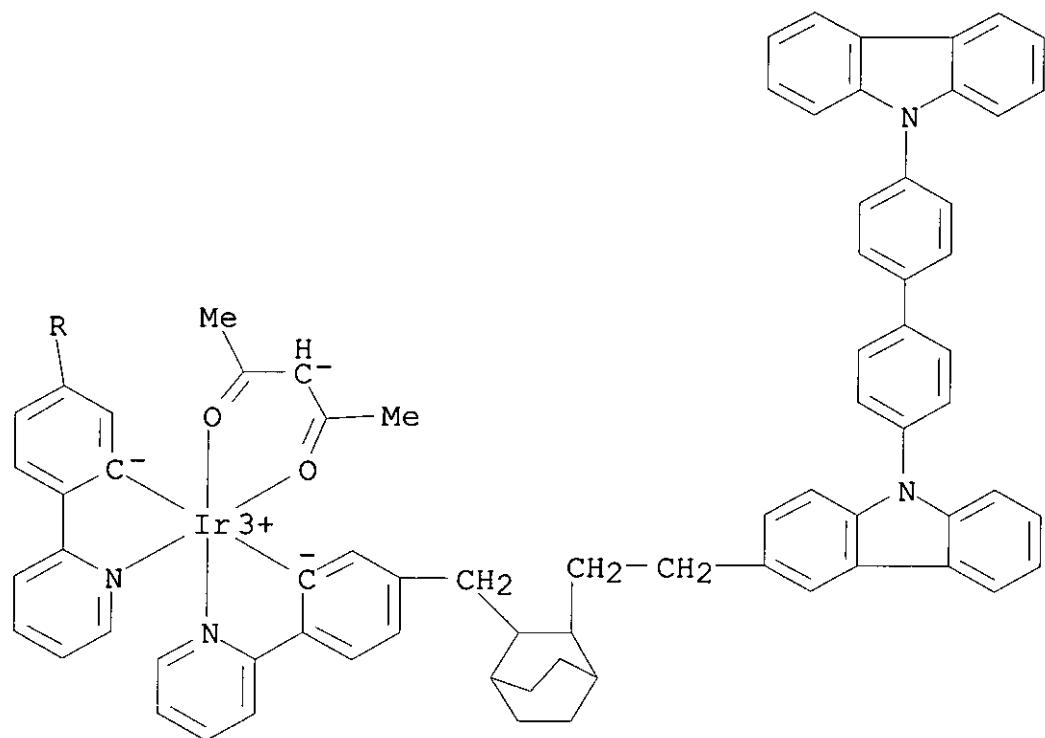
PAGE 2-A



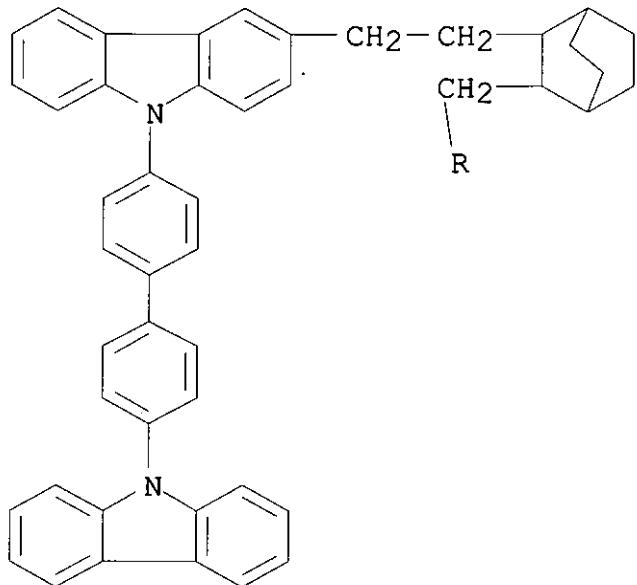
RN 757953-13-2 HCAPLUS

CN Iridium, bis[5-[3-[2-[9-[4'-(9H-carbazol-9-yl)[1,1'-biphenyl]-4-yl]-9H-carbazol-3-yl]ethyl]bicyclo[2.2.2]oct-2-yl]methyl]-2-(2-pyridinyl- κ N)phenyl- κ C](2,4-pentanedionato- κ O, κ O')- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IC ICM C07D209-86

ICS C07D401-14; C09K011-06; H05B033-14; H05B033-22

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 27

IT 757953-07-4P 757953-09-6P 757953-11-0P

757953-13-2P

(organic compound and organic electroluminescence device)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 7 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:756324 HCPLUS

DOCUMENT NUMBER: 141:268203

TITLE: Trioxanes bearing carbazolyl groups, organic solvent compositions containing same, and electroluminescent devices employing same compounds

INVENTOR(S): Ito, Kiyoshi

PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan

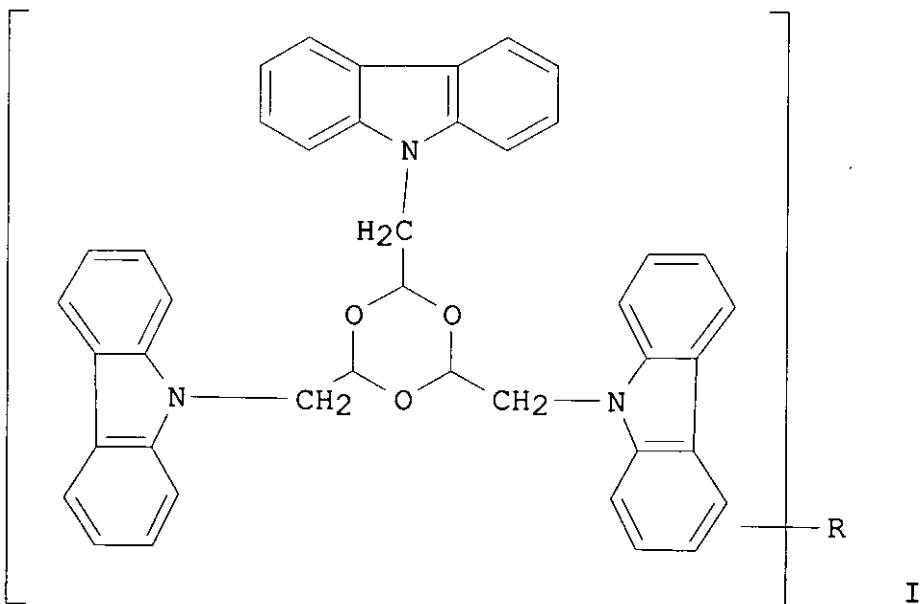
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004256452	A2	20040916	JP 2003-49592	2003 0226
PRIORITY APPLN. INFO.:			JP 2003-49592	2003 0226

OTHER SOURCE(S): MARPAT 141:268203
 GI



AB Claimed are carbazolyl-bearing trioxanes I ($R = H$, alkyl, alkenyl, alkyl ether, alkoxy, amino, etc.; R may be different when multiple R substitute). Also claimed are **electroluminescent** devices containing the compds. as **electroluminescent** materials or as charge-transport materials. Since the compds.

show good solubility in organic solvents without crystallization and sublimation,

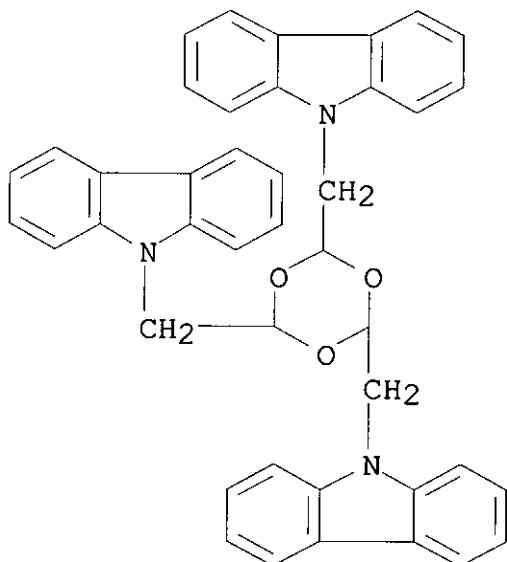
light-emitting layers or charge-transport layers including the compds. can be prepared by wet coating process.

IT **755043-05-1P**

(carbazolyl-bearing trioxanes as light-emitting and/or charge-transport materials in organic EL devices)

RN 755043-05-1 HCAPLUS

CN 9H-Carbazole, 9,9',9''-[1,3,5-trioxane-2,4,6-triyltris(methylene)]tris- (9CI) (CA INDEX NAME)



IC ICM C07D405-14

ICS C09K011-06; H05B033-14

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 28

IT **755043-05-1P**

(carbazolyl-bearing trioxanes as light-emitting and/or charge-transport materials in organic EL devices)

L14 ANSWER 8 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:753399 HCAPLUS

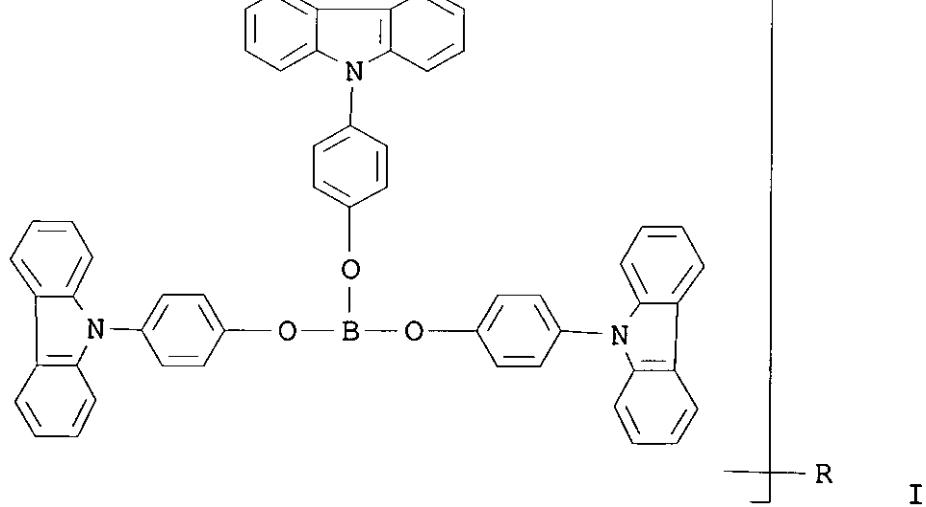
DOCUMENT NUMBER: 141:268196

TITLE: Tris[4-(N-carbazolyl)phenyl] borates, their compositions, and organic electroluminescent

INVENTOR(S): devices
 Ito, Kiyoshi
 PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004256455	A2	20040916	JP 2003-49595	2003 0226
PRIORITY APPLN. INFO.:			JP 2003-49595	2003 0226

OTHER SOURCE(S): MARPAT 141:268196
 GI



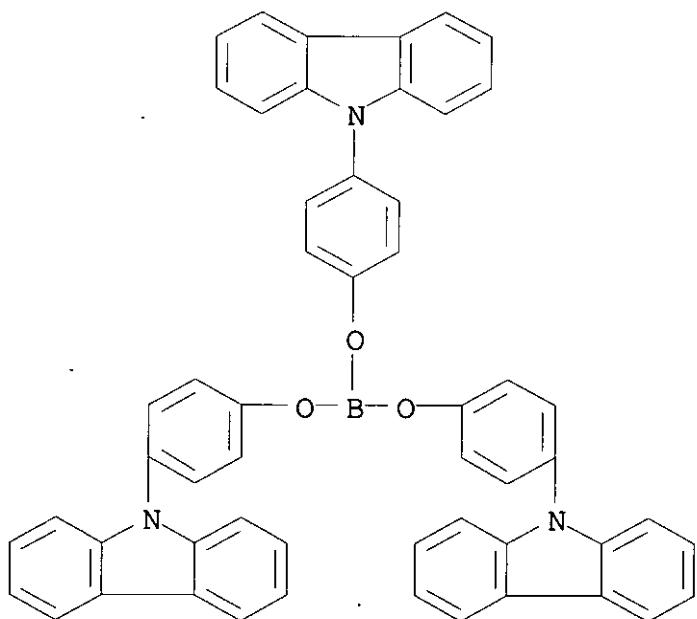
AB Title compds. are I ($R = H$, alkyl, alkenyl, etc.). The compds. have low crystallinity and sublimation property, resulting in economical formation of films by wet process using solvents. Thus, I ($R = H$) was manufactured from carbazole and tris(4-chlorophenyl) borate, and used for an emitter layer or a charge-transporting layer for an organic **electroluminescent** device.

IT **756526-60-0P**

(manufacture of tris[(N-carbazolyl)phenyl] borates for organic electroluminescent devices)

RN 756526-60-0 HCPLUS

CN Phenol, 4-(9H-carbazol-9-yl)-, triester with boric acid (H₃BO₃) (9CI) (CA INDEX NAME)



IC ICM C07F005-04

ICS C09K011-06; H05B033-14; H05B033-22

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 29

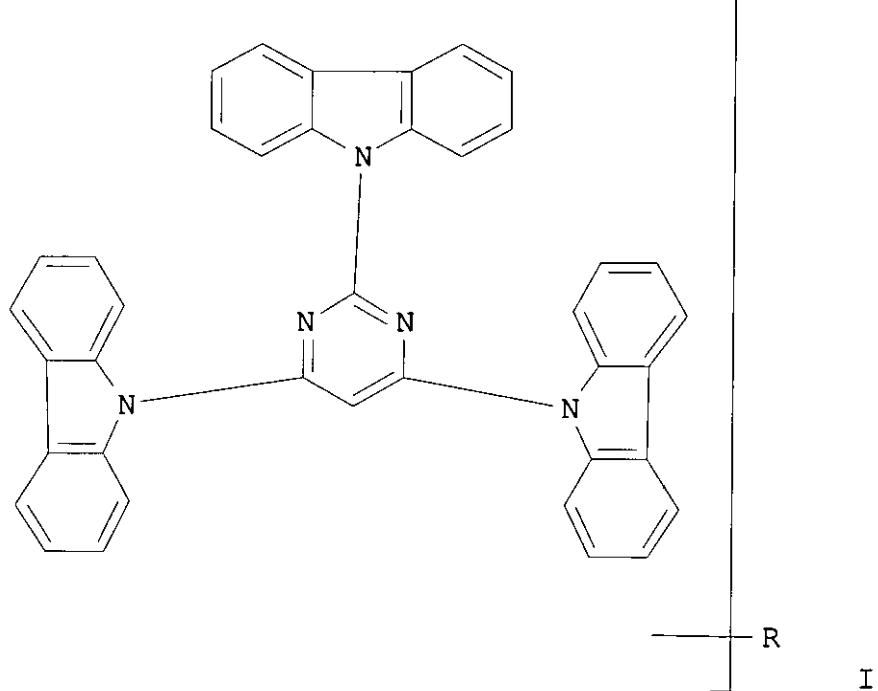
IT **756526-60-0P**

(manufacture of tris[(N-carbazolyl)phenyl] borates for organic electroluminescent devices)

L14 ANSWER 9 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:753398 HCAPLUS
DOCUMENT NUMBER: 141:268195
TITLE: Tricarbazolylpyrimidines, organic solvent compositions containing same, and electroluminescent devices employing same compounds
INVENTOR(S): Ito, Kiyoshi
PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004256451	A2	20040916	JP 2003-49591	2003 0226
PRIORITY APPLN. INFO.:			JP 2003-49591	2003 0226

OTHER SOURCE(S): MARPAT 141:268195
GI



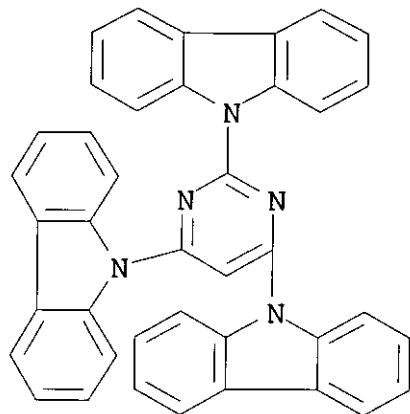
AB Claimed are tricarbazolylpyrimidines I (R = H, alkyl, alkenyl, alkyl ether, alkoxy, amino, etc.; R may be different when multiple R substitute). Also claimed are **electroluminescent** devices containing the compds. as **electroluminescent** materials or as charge-transport materials. Since the compds. show good solubility in organic solvents without crystallization and sublimation,
light-emitting layers or charge-transport layers including the compds. can be prepared by wet coating process.

IT 699119-36-3DP, derivs.

(tricarbazolylpyrimidines as light-emitting and/or charge-transport materials in organic EL devices)

RN 699119-36-3 HCPLUS

CN 9H-Carbazole, 9,9',9'''-(2,4,6-pyrimidinetriyl)tris- (9CI) (CA INDEX NAME)



IC ICM C07D403-14
 ICS C09K011-06; H05B033-14
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
 Other Related Properties)
 Section cross-reference(s): 28
 IT **699119-36-3DP**, derivs.
 (tricarbazolylpyrimidines as light-emitting and/or
 charge-transport materials in organic EL devices)

L14 ANSWER 10 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:739385 HCPLUS
 DOCUMENT NUMBER: 141:268179
 TITLE: Long-life white-emitting organic
 electroluminescent devices, displays,
 illumination apparatus, and electric
 appliances therewith
 INVENTOR(S): Fukuda, Mitsuhiro; Genda, Kazuo
 PATENT ASSIGNEE(S): Konica Minolta Holdings, Inc., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 577 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	

JP 2004253298	A2	20040909	JP 2003-43860	2003

PRIORITY APPLN. INFO.:

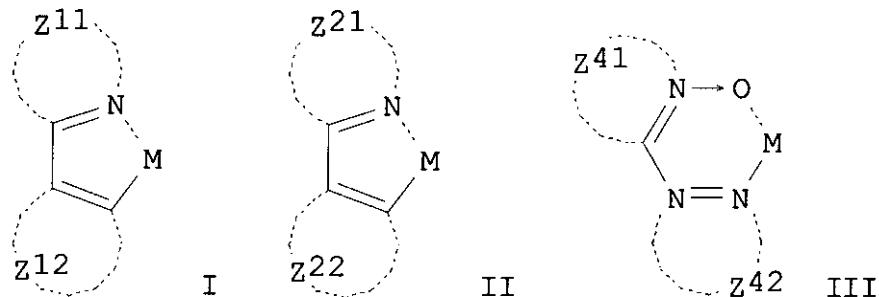
JP 2003-43860

0221

2003

0221

OTHER SOURCE(S): MARPAT 141:268179
GI



AB The devices have, in their constituent layers (e.g., emitting layers, hole- or electron-transporting layers), (i) compds. represented by X₁R₁C:CR₂X₂ [X₁, X₂ = aryl, heterocycle; R₁, R₂ = aryl, heterocyclic hydrocarbyl, cycloalkoxy (R₁ = R₂ = aryl)], R₁₁R₁₂R₁₃R₁₄R₁₅P (R₁₁-R₁₅ = monovalent substituent), Ar₂Ar₁C₆H₄ (m-Ar₁Ar₂) [Ar₁ = bivalent aromatic hydrocarbylene; Ar₂ = (substituted) Ph; H atom on the benzene ring may be substituted with (cyclo)alkyl, alkoxy, or halo], Z(ArQ)_n [Q = (substituted) o-(2-pyridyl)phenyl; Z = n-valent bridging group, single bond; Ar = bivalent arylene; n = 2-8], etc., (ii) fluorescent compds. with mol. weight 500-2000 and atomic ratio F/(F + H) 0-0.9 and having fluorescent peak at ≤415 nm, (iii) polysilanes (R₂₁R₂₂Si)_n [R₂₁, R₂₂ = alkyl(oxy), aromatic group, aryloxy; n₁ ≥ 3] or [R₃₁(Ar₃₁NR₃₂R₃₃)Si]_n [R₃₁ = alkyl(oxy), aromatic group, aryloxy; R₃₂, R₃₃ = alkyl, aromatic group; Ar₃₁ = arylene; n₂ ≥ 3], and/or (iv) fluorescent compds. satisfying atomic ratio N/C 0-0.05. The devices, having phosphorescent dopants I (Z₁₁ = aromatic azacycle; Z₁₂ = nonarom. ring, 5-membered aromatic ring, azulene; M = metal), II (Z₂₁, Z₂₂ = aromatic azacycle; M = metal), or III (Z₄₁ = azacycle; Z₄₂ = ring; M = metal) in emitting layers, are also claimed. The devices exhibit high luminescent efficiency and substantially white emission, and are suited for light source uses, especially of LCD.

IT 643758-09-2 643758-10-5 643758-15-0

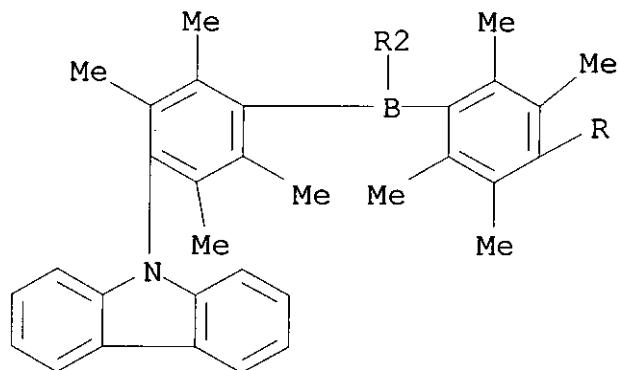
669072-72-4 705941-97-5 705942-24-1
 722547-84-4 722547-85-5 722547-86-6
 722547-87-7 722547-88-8 722547-89-9
 754231-82-8 754231-87-3

(long-life white-emitting organic LED containing azacyclic phosphorescent dopants and showing high luminescent efficiency)

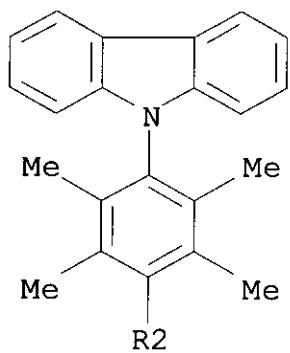
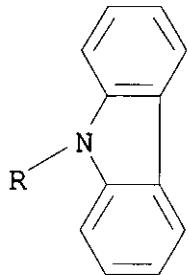
RN 643758-09-2 HCPLUS

CN 9H-Carbazole, 9,9',9'''-[borylidynetris(2,3,5,6-tetramethyl-4,1-phenylene)]tris- (9CI) (CA INDEX NAME)

PAGE 1-A

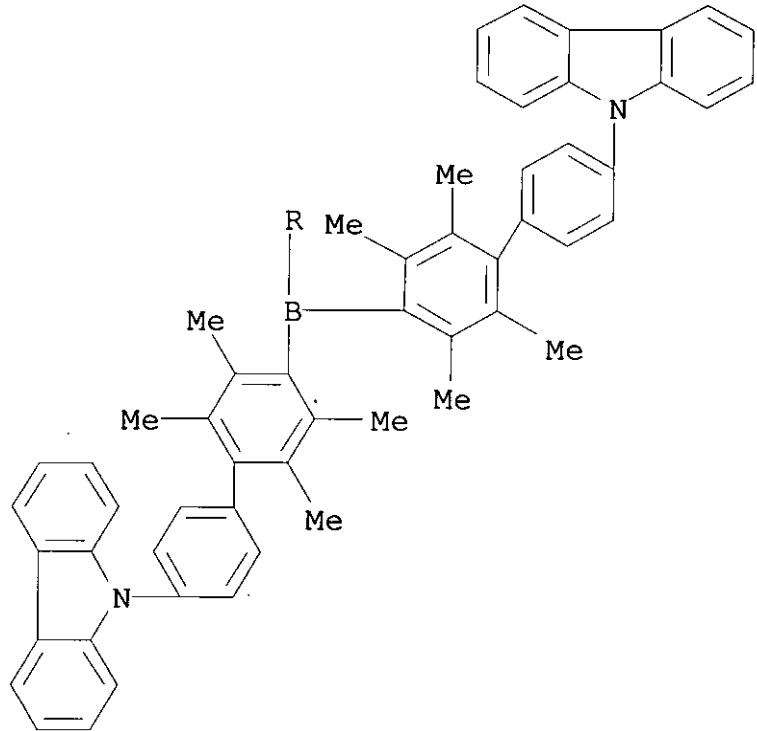


PAGE 2-A

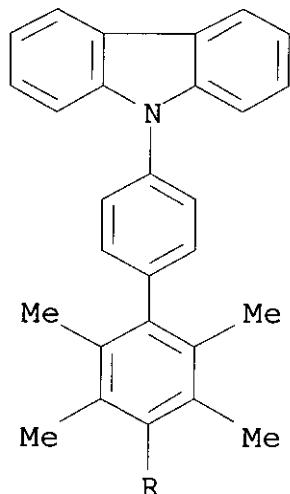


RN 643758-10-5 HCAPLUS
CN 9H-Carbazole, 9,9',9'''-[borylidynetris(2',3',5',6'-tetramethyl[1,1'-biphenyl]-4',4-diyl)]tris- (9CI) (CA INDEX NAME)

PAGE 1-A



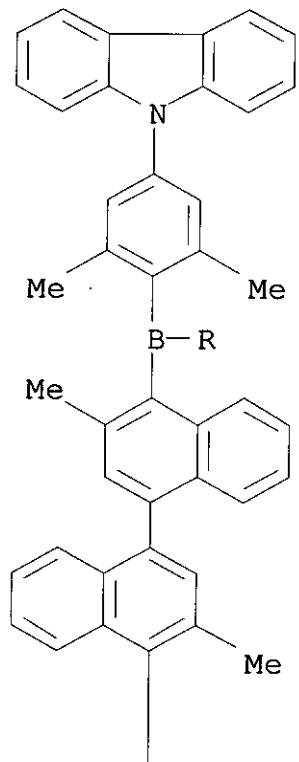
PAGE 2-A



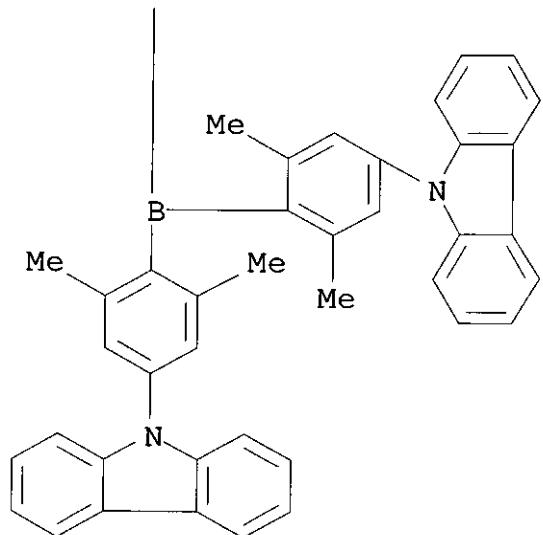
RN 643758-15-0 HCPLUS

CN 9H-Carbazole, 9,9',9'',9''',9''''-[(3,3'-dimethyl[1,1'-binaphthalene]-4,4'-diyl)bis[borylidynebis(3,5-dimethyl-4,1-phenylene)]]tetrakis-(9CI) (CA INDEX NAME)

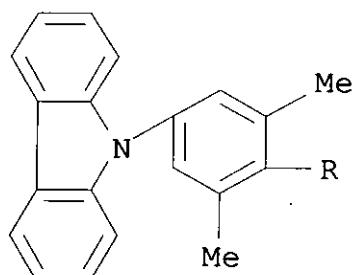
PAGE 1-A



PAGE 2-A

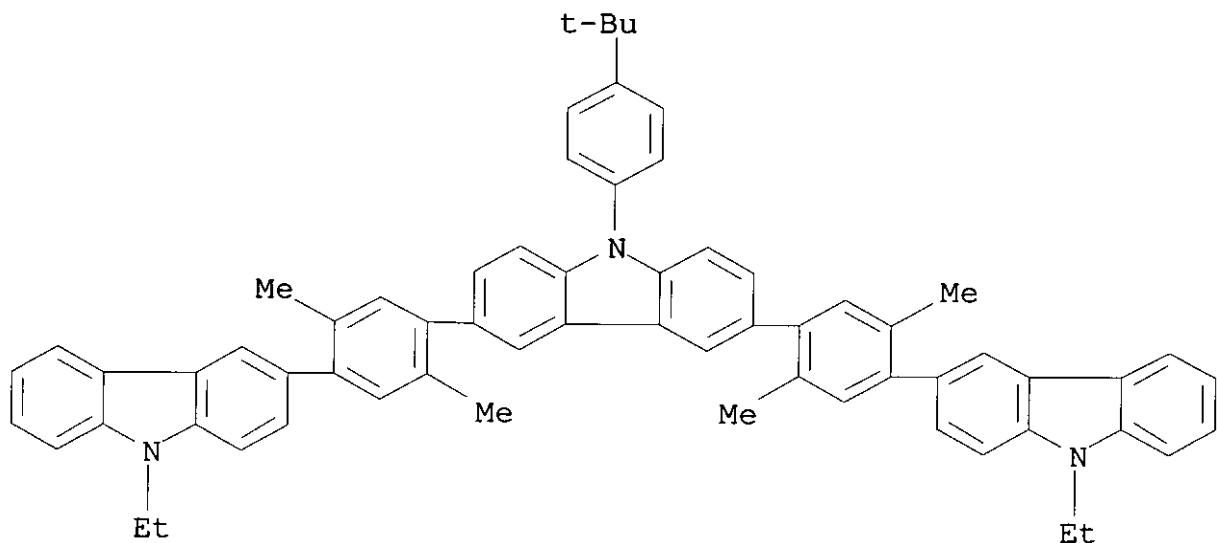


PAGE 3-A



RN 669072-72-4 HCPLUS

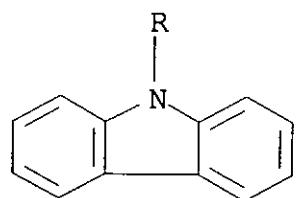
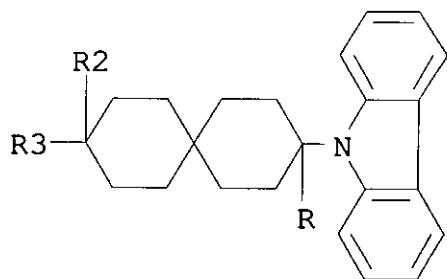
CN 9H-Carbazole, 9-[4-(1,1-dimethylethyl)phenyl]-3,6-bis[4-(9-ethyl-9H-carbazol-3-yl)-2,5-dimethylphenyl]- (9CI) (CA INDEX NAME)



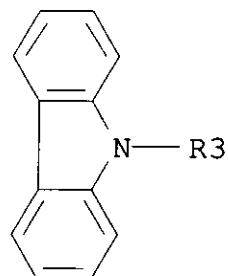
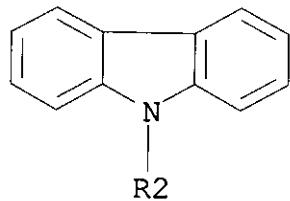
RN 705941-97-5 HCAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-spiro[5.5]undecane-3,9-diylidene-
tetraakis- (9CI) (CA INDEX NAME)

PAGE 1-A



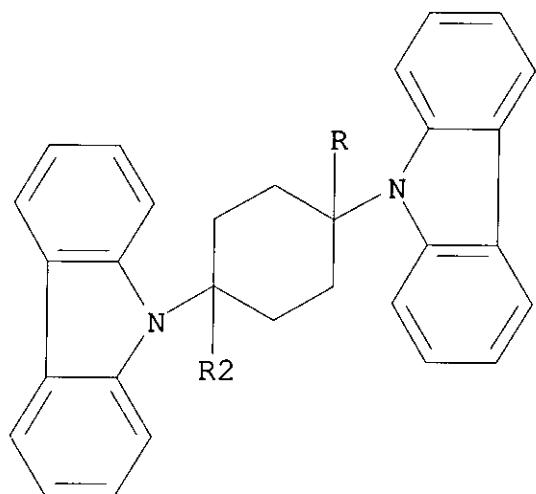
PAGE 2-A



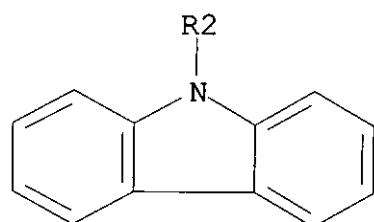
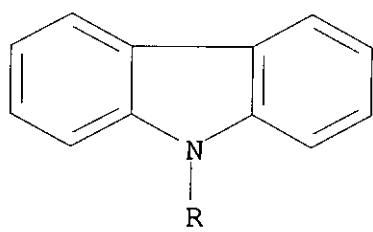
RN 705942-24-1 HCPLUS

CN 9H-Carbazole, 9,9',9'',9'''-(1,4-cyclohexanediylidene)tetrakis-
(9CI) (CA INDEX NAME)

PAGE 1-A

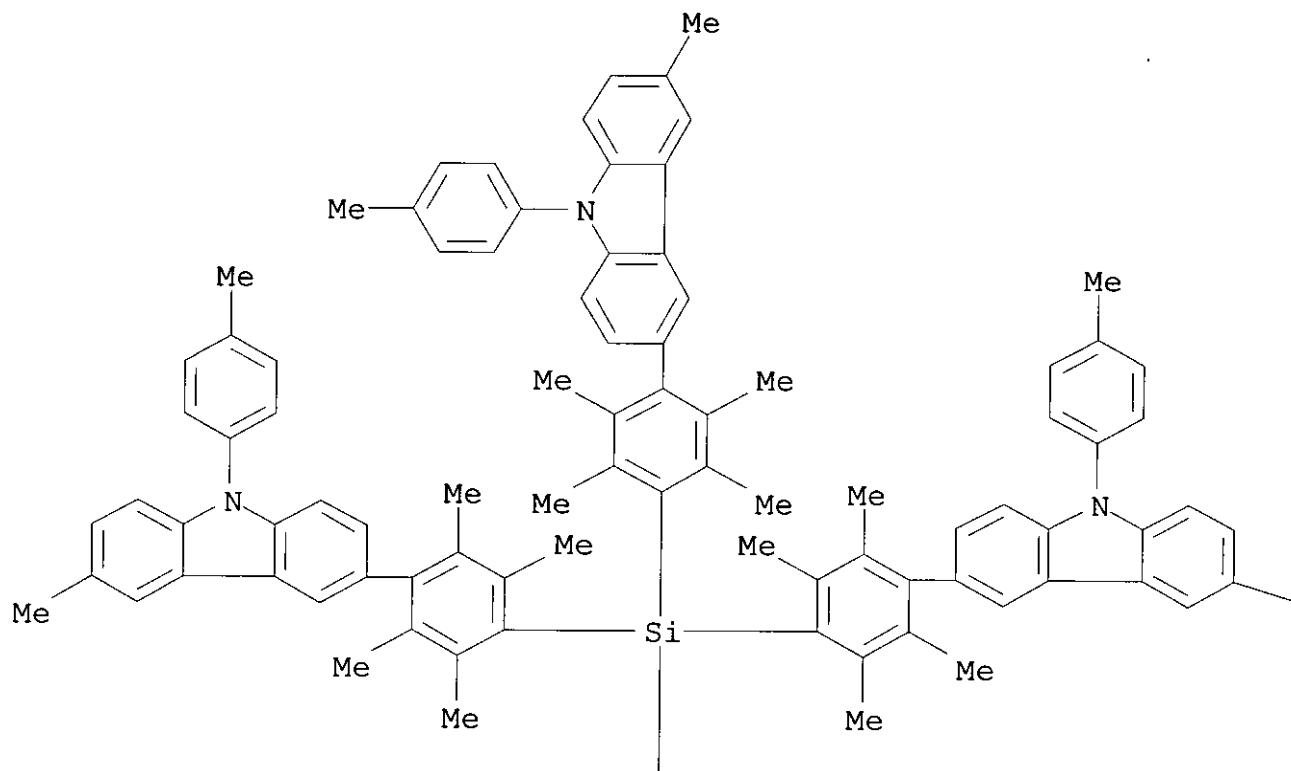


PAGE 2-A



RN 722547-84-4 HCAPLUS
CN 9H-Carbazole, 3,3',3'',3'''-[silanetetracyl]tetrakis(2,3,5,6-tetramethyl-4,1-phenylene) tetrakis[6-methyl-9-(4-methylphenyl)-(9CI) (CA INDEX NAME)]

PAGE 1-A



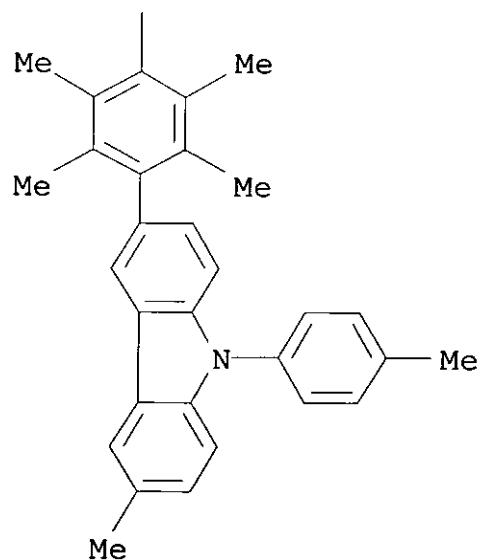
THOMPSON 10/718,360

Page 46

PAGE 1-B

Me

PAGE 2-A

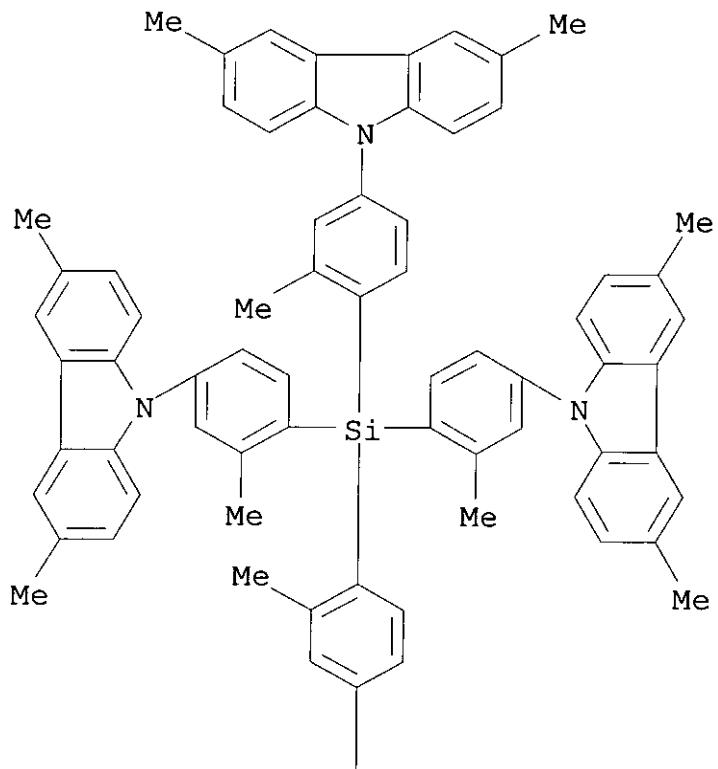


RN 722547-85-5 HCPLUS

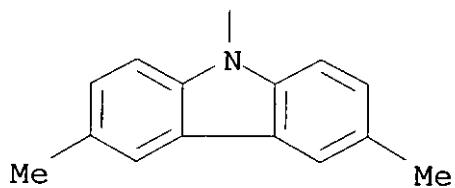
USHA SHRESTHA REM 4B28

CN 9H-Carbazole, 9,9',9'',9'''-[silanetetrayltetrakis(3-methyl-4,1-phenylene)]tetrakis[3,6-dimethyl- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

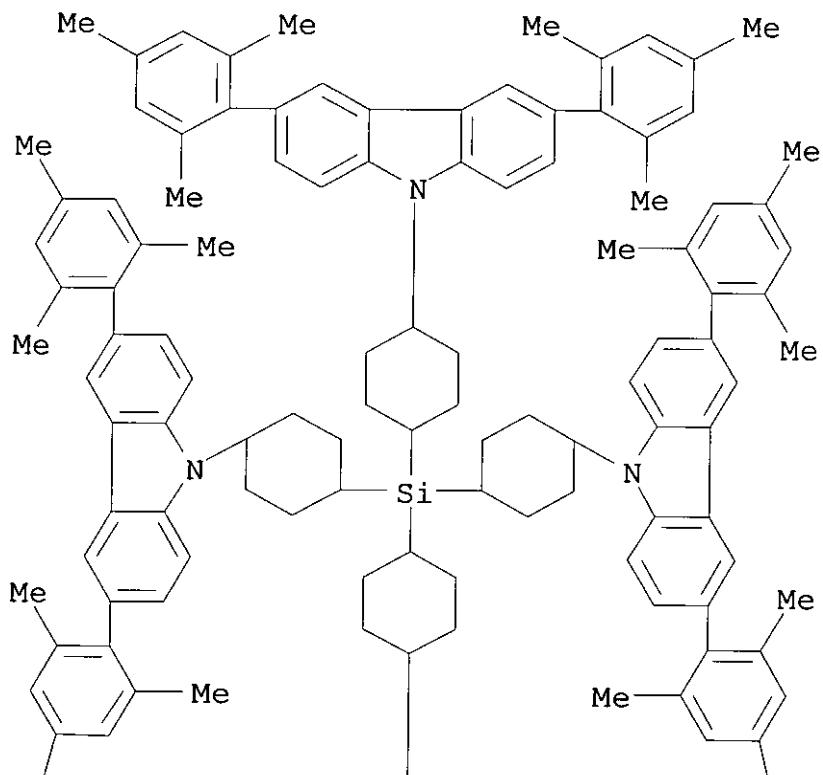


RN 722547-86-6 HCPLUS

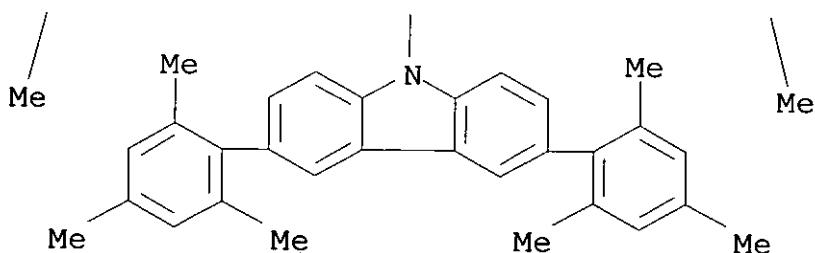
CN 9H-Carbazole, 9,9',9'',9'''-(silanetetrayltetra-4,1-cyclohexanediyl)tetrakis[3,6-bis(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)]

(CA INDEX NAME)

PAGE 1-A



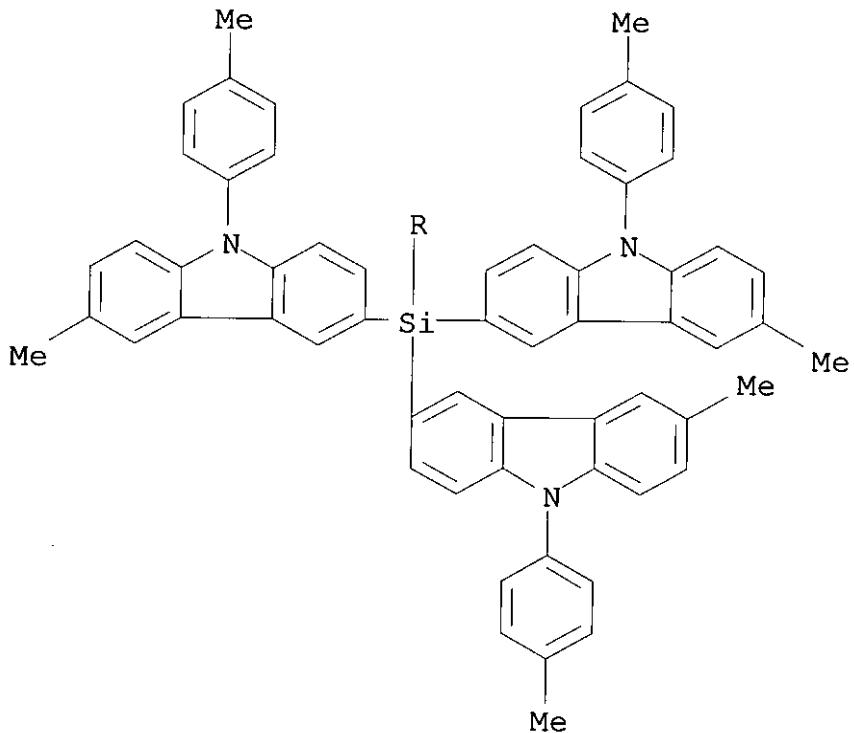
PAGE 2-A



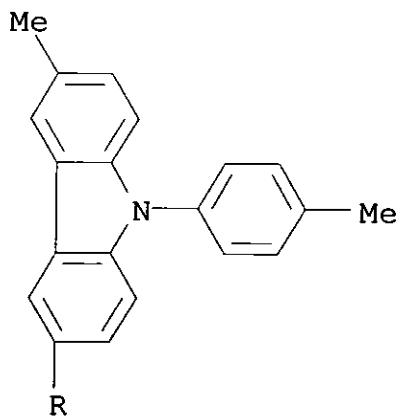
RN 722547-87-7 HCAPLUS

CN 9H-Carbazole, 3,3',3'',3'''-silanetetracyclic[6-methyl-9-(4-methylphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A

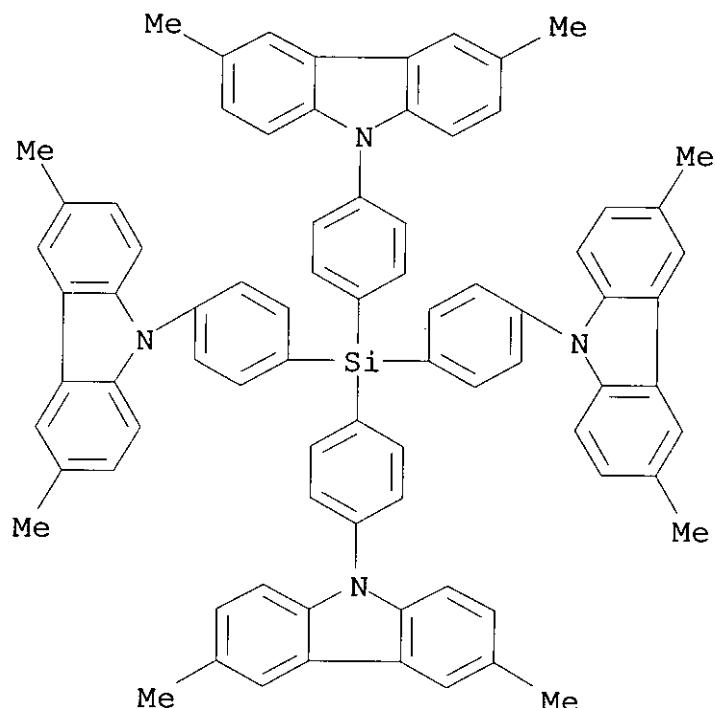


PAGE 2-A



RN 722547-88-8 HCAPLUS

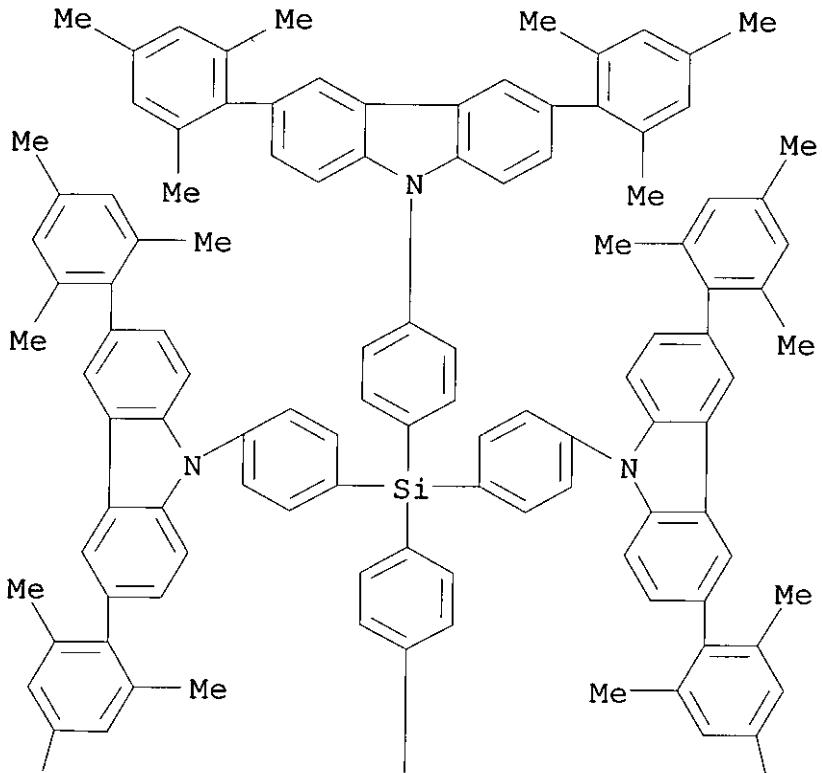
CN 9H-Carbazole, 9,9',9'',9'''-(silanetetrayltetra-4,1-phenylene)tetrakis[3,6-dimethyl- (9CI) (CA INDEX NAME)



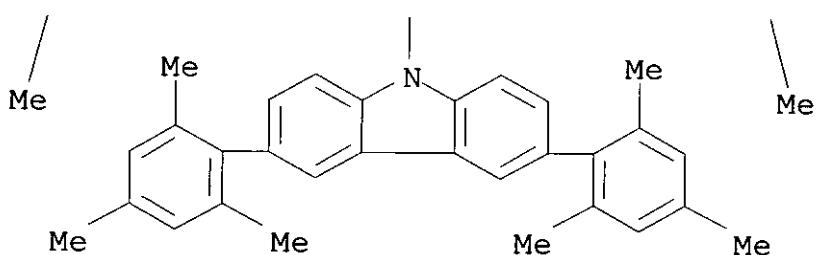
RN 722547-89-9 HCAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-(silanetetrayltetra-4,1-phenylene)tetrakis[3,6-bis(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)

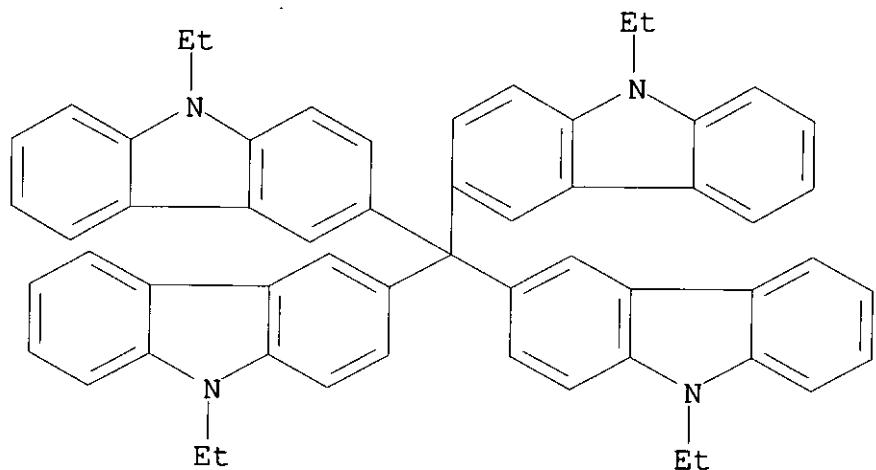
PAGE 1-A



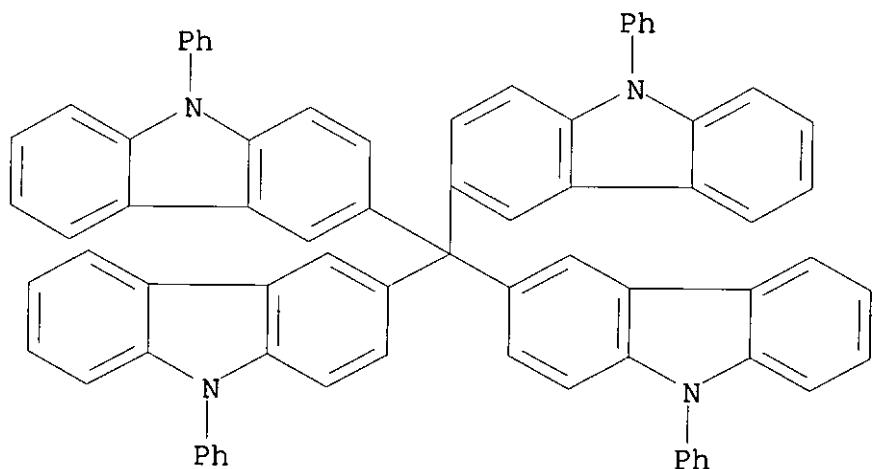
PAGE 2-A



RN 754231-82-8 HCPLUS
 CN 9H-Carbazole, 3,3',3'',3'''-methanetetracyl[9-ethyl- (9CI)
 (CA INDEX NAME)



RN 754231-87-3 HCPLUS

CN 9H-Carbazole, 3,3',3'',3'''-methanetetracyl[9-phenyl- (9CI)
(CA INDEX NAME)]

IC ICM H05B033-14

ICS C09K011-06; G02F001-1335; H05B033-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 25, 28, 29, 38, 74

IT 71-43-2, Benzene, uses 159-68-2, 9,9'-Spirobi[9H-9-silafluorene]
346-02-1 752-28-3 1423-70-7 17742-49-3 18822-13-4
20156-53-0 32314-41-3 33861-11-9 35088-77-8 38186-32-2

54765-15-0	65181-79-5	122107-04-4	133942-93-5	139376-06-0
142289-08-5	203070-80-8	213621-16-0	219917-71-2	
288581-17-9	300823-56-7	300823-57-8	301300-11-8	
332350-53-5	405171-49-5	405171-87-1	405172-39-6	
453590-51-7	478262-73-6	478262-74-7	478262-76-9	
478262-77-0	478262-78-1	478262-79-2	478370-42-2	
492446-94-3	492446-97-6	497097-34-4	497097-36-6	
511270-11-4	522630-08-6	522630-12-2	522630-19-9	
522630-30-4	522630-34-8	522630-36-0	557787-50-5	
557787-51-6	557787-53-8	557787-54-9	557787-56-1	
557787-57-2	557787-58-3	557787-59-4	564483-87-0	
567625-72-3	567625-73-4	567625-75-6	567625-78-9	
567625-80-3	569674-85-7	569674-87-9	569674-89-1	
569674-90-4	569674-92-6	569674-94-8	569674-95-9	
569674-96-0	583040-29-3	583040-30-6	583040-31-7	
583040-32-8	583040-34-0	583040-40-8	587877-29-0	
587877-33-6	587877-38-1	587877-50-7	606142-46-5	
606142-48-7	606142-49-8	606142-50-1	606142-51-2	
606142-52-3	606142-55-6	606142-58-9	606142-59-0	
606142-60-3	606142-61-4	608145-70-6	608145-80-8	
608145-85-3	620630-42-4	620630-43-5	620630-45-7	
620630-46-8	620630-51-5	620630-52-6	620630-53-7	
620630-54-8	620630-56-0	620630-57-1	620630-58-2	
620630-59-3	620630-61-7	620630-63-9	620630-64-0	
620630-65-1	620630-66-2	620630-67-3	640773-62-2	
640773-65-5	640773-68-8	643029-54-3	643029-58-7	
643029-59-8	643029-60-1	643029-61-2	643029-63-4	
643753-82-6	643758-09-2 643758-10-5			
643758-15-0	644973-61-5	644973-63-7	644973-65-9	
644973-67-1	645399-24-2	645399-25-3	645399-27-5	
645399-33-3	645399-37-7	650606-83-0	650606-86-3	
650606-88-5	650606-89-6	650606-91-0	650606-97-6	
655236-05-8	655236-07-0	655236-12-7	655240-48-5	
655240-49-6	663219-23-6	663219-25-8	663219-28-1	
663219-29-2	663219-39-4	666839-78-7	666839-81-2	
666839-86-7	666839-89-0	666839-92-5	669072-36-0	
669072-52-0	669072-60-0	669072-72-4	676553-38-1	
688315-81-3	688315-82-4	688315-83-5	688315-84-6	
688315-86-8	688315-87-9	688315-88-0	688315-89-1	
694534-34-4	694534-41-3	694534-43-5	694534-44-6	
694534-45-7	694534-46-8	694534-47-9	705941-97-5	
705942-24-1	705973-76-8	705973-79-1	705973-80-4	
705973-82-6	722547-84-4 722547-85-5			
722547-86-6	722547-87-7 722547-88-8			
722547-89-9	754231-79-3	754231-80-6		

754231-82-8 754231-83-9 754231-84-0
754231-87-3 754231-88-4 754231-89-5 754231-90-8
754231-91-9 754231-92-0 754231-94-2

(long-life white-emitting organic **LED** containing azacyclic phosphorescent dopants and showing high luminescent efficiency)

L14 ANSWER 11 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:718614 HCAPLUS
 DOCUMENT NUMBER: 141:251178
 TITLE: Organic materials for electroluminescent device showing high luminous efficiency
 INVENTOR(S): Tomita, Seiji; Iwakuma, Toshihiro; Arakane, Takashi; Yamamichi, Keiko; Hosokawa, Chishio
 PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 71 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	-----
WO 2004074399	A1	20040902	WO 2004-JP1796	2004 0218

W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA,
 BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN,
 CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ,
 EC, EC, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH,
 GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG,
 KG, KP, KP, KR, KR, KZ, KZ, KZ, LC, LK, LR, LS, LS,
 LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ,
 NA, NI
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW,
 AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,
 HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ,
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG,
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
 TD, TG

PRIORITY APPLN. INFO.: JP 2003-42625

A

2003
0220

JP 2003-387855

A

2003
1118

OTHER SOURCE(S): MARPAT 141:251178

AB The invention relates to an organic **electroluminescent** device material composed of a low-symmetry compound having a specific structure represented by (Cz)_c(Ar₄)_bAr₃(Ar₁)_aAr₂ (Cz: selected from carbazolyl, arylcarbazolyl of C₁₈-C₆₀, azacarbazolyl, acrylazacarbazolyl of C₁₈-C₆₀, acridinyl etc.; Ar₁ and Ar₂: selected from substituted or non-substituted aryl of C₆-C₆₀ or heterocyclic ring of C₃-C₆₀; Ar₃: selected from heterocyclic ring of C₃-C₆₀; Ar₄: selected from substituted or non-substituted benzene residue etc.; a:0-1; b:0-4; c:1-3). An organic **electroluminescent** device comprising an organic thin film layer which is interposed between a cathode and an anode and composed of one or more layers including at least a **light emitting** layer is also disclosed. At least one layer of the organic thin film layer of this device contains the above-described material for organic **electroluminescent** devices, which material enables to provide organic **electroluminescent** devices having high luminous efficiency, no pixel defect, and excellent heat resistance.

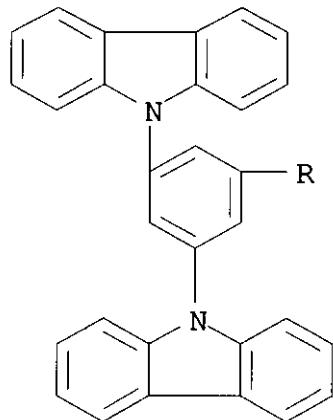
IT 750573-34-3P

(organic materials for electroluminescent device having high luminous efficiency)

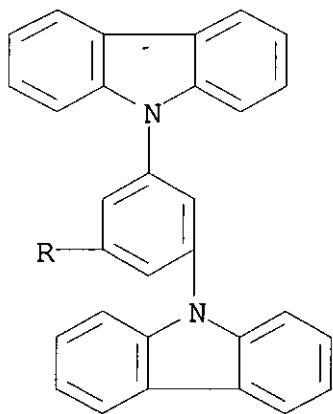
RN 750573-34-3 HCPLUS

CN 9H-Carbazole, 9,9',9'',9'''-[1,1'-biphenyl]-3,3',5,5'-tetrayltetrakis- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IC ICM C09K011-06
ICS H05B033-14

CC 73-11 (**Optical, Electron, and Mass Spectroscopy and Other Related Properties**)

Section cross-reference(s): 27, 28, 76

IT 750573-25-2P 750573-27-4P 750573-29-6P 750573-33-2P

750573-34-3P

(organic materials for electroluminescent device having high luminous efficiency)

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

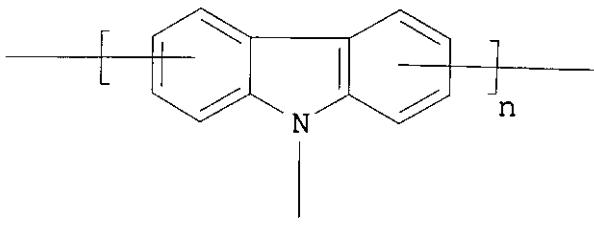
L14 ANSWER 12 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:698199 HCAPLUS
 DOCUMENT NUMBER: 141:232971
 TITLE: Carbazole compounds and use of such compounds in organic electroluminescent devices
 INVENTOR(S): Brunner, Klemens; De Kok-Van Breemen, Margaretha M.; Langeveld, Bea M. W.; Kiggen, Nicole M. M.; Bastiaansen, Jolanda J. A. M.; Hofstraat, Johannes W.; Boerner, Herbert F.; Schoo, Hermannus F. M.
 PATENT ASSIGNEE(S): Koninklijke Philips Electronics N.V., Neth.
 SOURCE: PCT Int. Appl., 56 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 3
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
WO 2004072205	A2	20040826	WO 2004-IB50049	2004 0123
WO 2004072205	A3	20040916		
W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG, KG, KP, KP, KR, KR, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.: NL 2003-1022660 A
2003

0212

GI

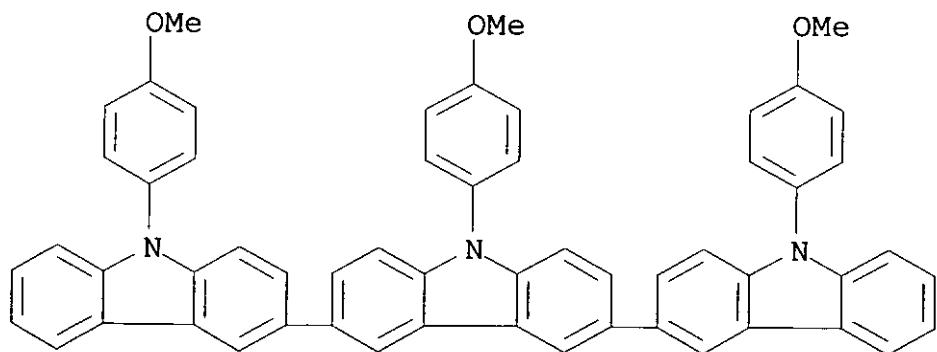


AB Carbazole compds., polymeric or of low mol. weight, are described which comprise a carbazole multimer unit are described by the general formula I ($n \geq 2$) wherein each carbazole unit may be unsubstituted or substituted with ≥ 1 substituents. Combinations of the with a **light-emitting** compound, especially a triplet emitter, capable of accepting energy from the carbazole compound are also described. **Electroluminescent** devices are described which employ the carbazole compds. or the combinations.

IT **714972-57-3P**
(oligomeric or polymeric carbazole compds. and luminescent compns. containing them and electroluminescent devices using them)

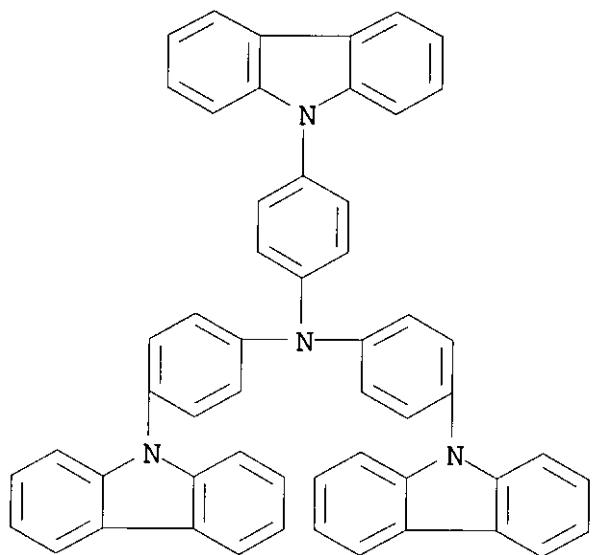
RN 714972-57-3 HCPLUS

CN 3,3':6',3''-Ter-9H-carbazole, 9,9',9'''-tris(4-methoxyphenyl)-
(9CI) (CA INDEX NAME)



IC ICM C09K011-06
ICS H01L051-30; C08G073-06; C08L079-04; H05B033-14; H01B001-12;
C07D209-82
CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
Other Related Properties)
Section cross-reference(s): 27, 76
IT 57102-48-4P **714972-57-3P**
(oligomeric or polymeric carbazole compds. and luminescent
compns. containing them and electroluminescent devices using them)

L14 ANSWER 13 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:519756 HCPLUS
DOCUMENT NUMBER: 141:197088
TITLE: Molecular hosts for triplet emission in light
emitting diodes: a quantum-chemical study
AUTHOR(S): Marsal, P.; Avilov, I.; da Silva Filho, D. A.;
Bredas, J. L.; Beljonne, D.
CORPORATE SOURCE: Laboratory for Chemistry of Novel Materials,
Center for Research on Service de Chemie des
Matesuena, University of Mons-Hainaut, Mons,
B-7000, Belg.
SOURCE: Chemical Physics Letters (2004), 392(4-6),
521-528
CODEN: CHPLBC; ISSN: 0009-2614
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Correlated semiempirical and ab initio quantum-chemical methods are
applied to the description of the lowest-lying triplet excited
state, T1, in conjugated mols. used as hosts in phosphorescent
light emitting diodes. D. functional theory leads to the best
agreement between measured and calculated excitation energies in a set
of reference mols. The trade-off between the barrier for charge
injection and the singlet-triplet S0 → T1 energy spacing is
discussed in the context of the design of mol. hosts for blue
triplet guest emitters.
IT **139092-78-7**
(mol. host for triplet emission in **LEDs** quantum chemical
study)
RN 139092-78-7 HCPLUS
CN Benzenamine, 4-(9H-carbazol-9-yl)-N,N-bis[4-(9H-carbazol-9-
yl)phenyl]- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 603-34-9, Triphenylamine 1150-62-5, 9H-Carbazole, 9-phenyl-1484-12-4, 9H-Carbazole, 9-methyl- 4733-39-5, BCP 46498-17-3 58246-82-5 58328-31-7, CBP 65181-78-4, TPD (photoreceptor) 69297-87-6 **139092-78-7** 224820-82-0 604785-54-8, 9H-Carbazole, 9,9'-[2,2'-dimethyl-1,1'-biphenyl]-4,4'-diylbis-740839-92-3 740839-93-4 740839-94-5

(mol. host for triplet emission in LEDs quantum chemical study)

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 14 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:493169 HCAPLUS

DOCUMENT NUMBER: 141:61824

TITLE: Organic electroluminescence device and display

INVENTOR(S): Oshiyama, Tomohiro; Yamada, Taketoshi; Kita, Hiroshi

PATENT ASSIGNEE(S): Konica Minolta Holdings Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 38 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004171860	A2	20040617	JP 2002-334908	2002 1119
PRIORITY APPLN. INFO.: JP 2002-334908				2002 1119

OTHER SOURCE(S): MARPAT 141:61824

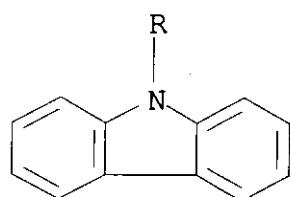
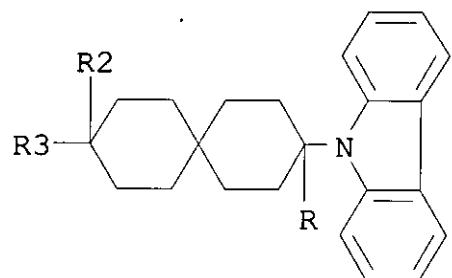
AB The invention relates to a phosphorescent organic **electroluminescent** device comprising an **electroluminescent** layer host material represented by X1-(A1)_n [X1 = nonarom. linking group; A1 = carbazole derivs.; n = 1-4 integer], and a hole-blocking layer made of a substance selected from styryl, triazole, phenanthroline, oxadiazol, and boron compound derivs.

IT **705941-97-5P**
 (phosphorescent organic electroluminescence device)

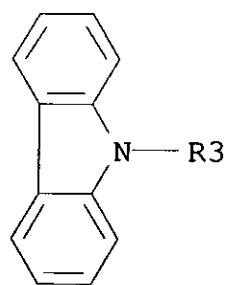
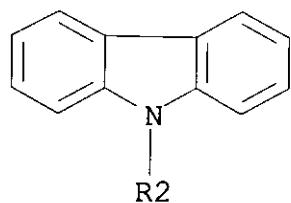
RN 705941-97-5 HCPLUS

CN 9H-Carbazole, 9,9',9'',9'''-spiro[5.5]undecane-3,9-diylidene-tetrakis- (9CI) (CA INDEX NAME)

PAGE 1-A



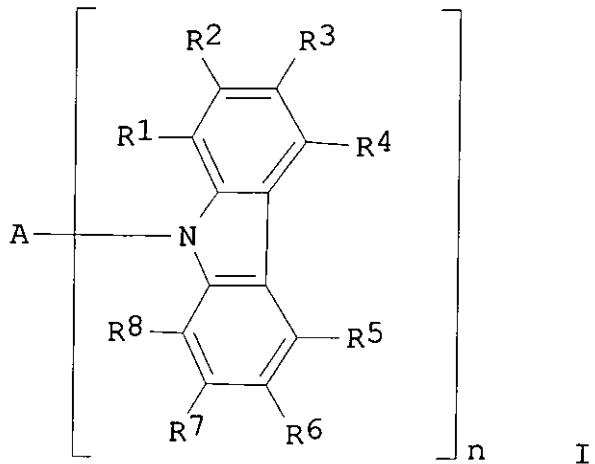
PAGE 2-A



IC ICM H05B033-14
 ICS C09K011-06; H05B033-22; C07D209-86
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
 Other Related Properties)
 IT 705941-83-9P **705941-97-5P**
 (phosphorescent organic electroluminescence device)

L14 ANSWER 15 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:493154 HCAPLUS
 DOCUMENT NUMBER: 141:61823
 TITLE: Organic electroluminescent device and display
 INVENTOR(S): Fukuda, Mitsuhiro; Yamada, Taketoshi; Kita,
 Hiroshi
 PATENT ASSIGNEE(S): Konica Minolta Holdings Inc., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 35 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	
JP 2004171808	A2	20040617	JP 2002-333320	2002
				1118
PRIORITY APPLN. INFO.:			JP 2002-333320	2002
				1118
OTHER SOURCE(S):	MARPAT	141:61823		
GI				

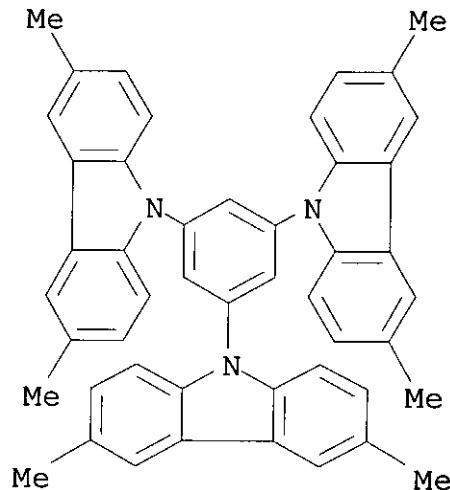


AB The invention relates to an organic **electroluminescent** device and display, especially a phosphorescent **electroluminescence** device, comprising the carbazole derivative represented by I [A = aromatic ring residue; R1-8 = H and substituted group (at least one of R1-8 is a substituted group other than H); n = ≥ 1 integer].

IT **705280-81-5P 705280-83-7P**
(phosphorescent organic electroluminescent device and display)

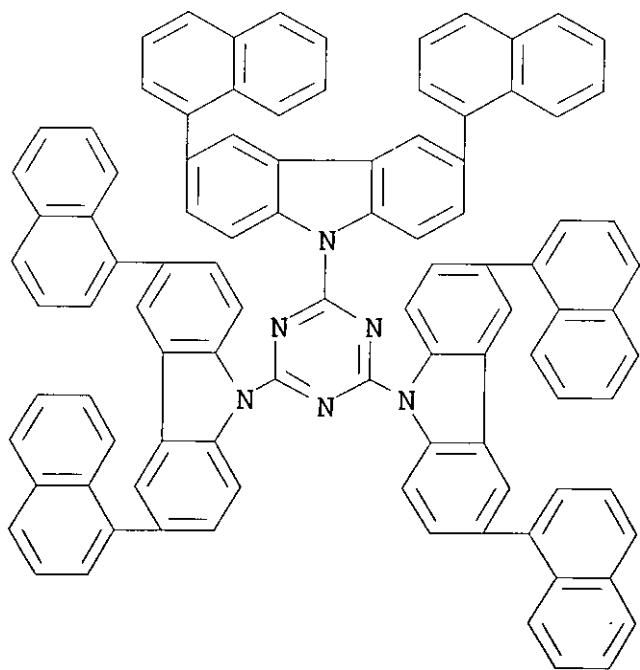
RN 705280-81-5 HCAPLUS

CN 9H-Carbazole, 9,9',9'''-(1,3,5-benzenetriyl)tris[3,6-dimethyl-(9CI) (CA INDEX NAME)]



RN 705280-83-7 HCAPLUS

CN 9H-Carbazole, 9,9',9'''-(1,3,5-triazine-2,4,6-triyl)tris[3,6-di-1-naphthalenyl- (9CI) (CA INDEX NAME)]



IC ICM H05B033-14
 ICS C09K011-06
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 74
 IT **705280-81-5P 705280-83-7P**
 (phosphorescent organic electroluminescent device and display)

L14 ANSWER 16 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:473163 HCPLUS
 DOCUMENT NUMBER: 141:30891
 TITLE: Organic electroluminescent device and display
 INVENTOR(S): Fukuda, Mitsuhiro; Kita, Hiroshi; Yamada, Taketoshi
 PATENT ASSIGNEE(S): Japan
 SOURCE: U.S. Pat. Appl. Publ., 37 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004110031	A1	20040610	US 2003-718360	2003 1120
JP 2004178895	A2	20040624	JP 2002-342192	2002 1126
PRIORITY APPLN. INFO.:			JP 2002-342192	A 2002 1126

OTHER SOURCE(S): MARPAT 141:30891

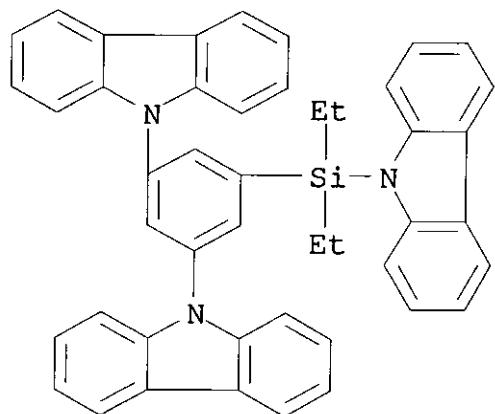
AB Disclosed is an organic **electroluminescent** device comprising a component layer including a **light emission** layer, wherein the **light emission** layer contains a phosphorescent compound, and the component layer contains a compound represented by A-(Z)n, [A = (un)substituted aromatic ring residue; n = 3-6 integer; and Z = monovalent organic group represented by -L-Cz, [L = chemical pond and divalent linking group; Cz = (un)substituted carbazole residue], provided that A-(Z)n does not have an n-fold axis of symmetry].

IT **699119-91-0P**

(org. electroluminescent device and display having light emitting layer containing phosphorescent substance)

RN 699119-91-0 HCPLUS

CN 9H-Carbazole, 9,9'-(5-(9H-carbazol-9-yl-diethylsilyl)-1,3-phenylene)bis- (9CI) (CA INDEX NAME)

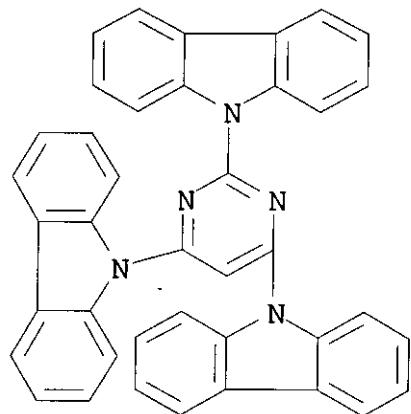


IT **699119-36-3P 699119-40-9P 699119-44-3P
699119-49-8P 699119-54-5P 699119-58-9P
699119-61-4P 699119-65-8P 699119-69-2P
699119-73-8P 699119-77-2P 699119-81-8P
699119-86-3P 699119-96-5P 699120-00-8P**

(organic electroluminescent device and display having light emitting layer containing phosphorescent substance)

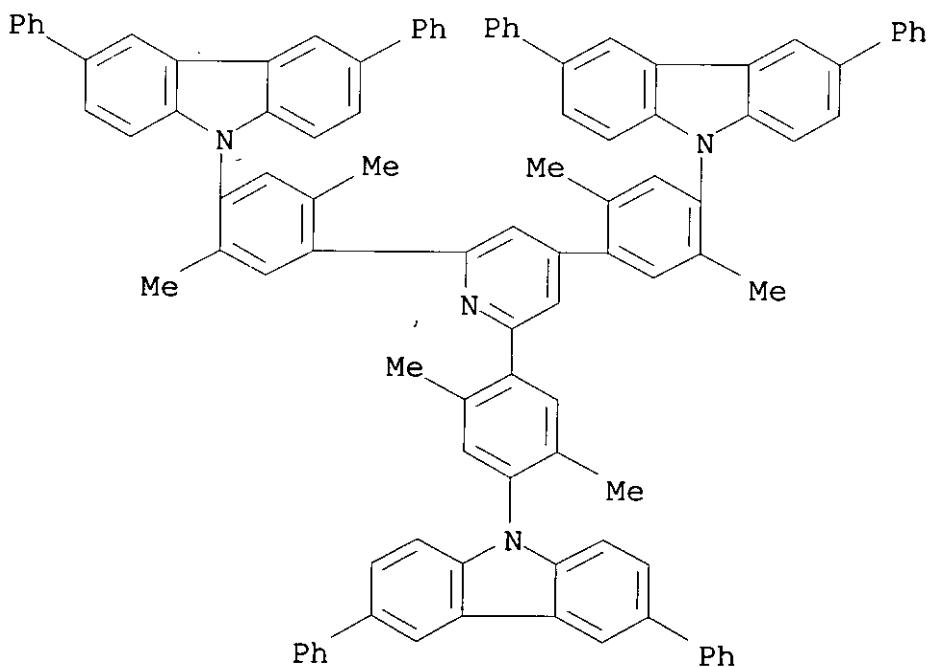
RN 699119-36-3 HCPLUS

CN 9H-Carbazole, 9,9',9'''-(2,4,6-pyrimidinetriyl)tris- (9CI) (CA INDEX NAME)



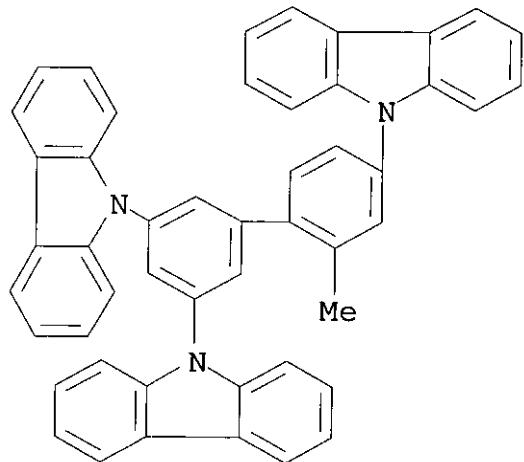
RN 699119-40-9 HCPLUS

CN 9H-Carbazole, 9,9',9'''-[2,4,6-pyridinetriyltris(2,5-dimethyl-4,1-phenylene)]tris[3,6-diphenyl- (9CI) (CA INDEX NAME)



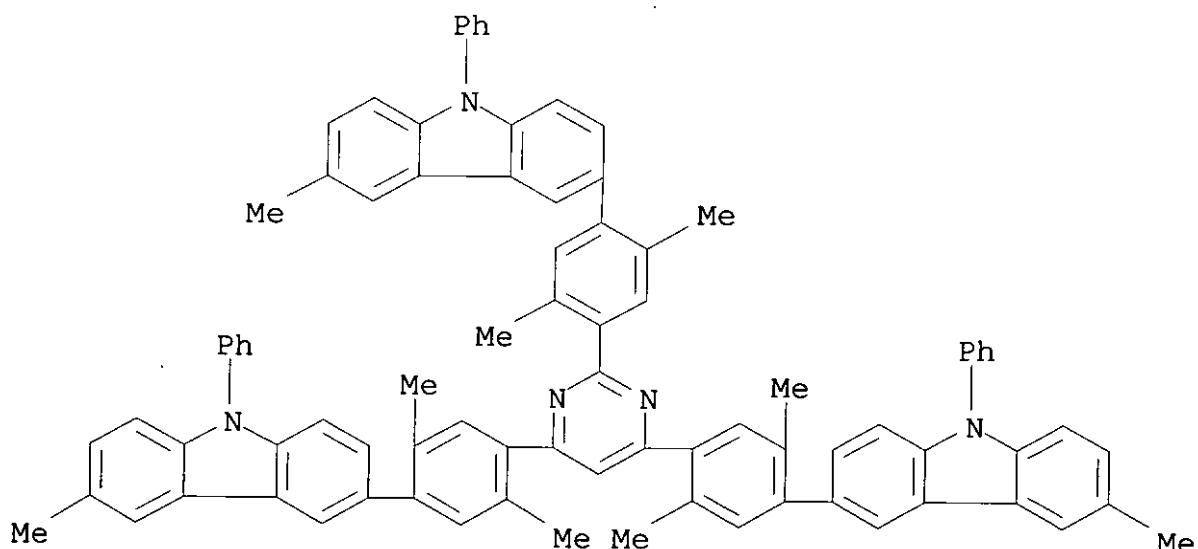
RN 699119-44-3 HCPLUS

CN 9H-Carbazole, 9,9',9'''-(2'-methyl[1,1'-biphenyl]-3,4',5-triyl)tris- (9CI) (CA INDEX NAME)



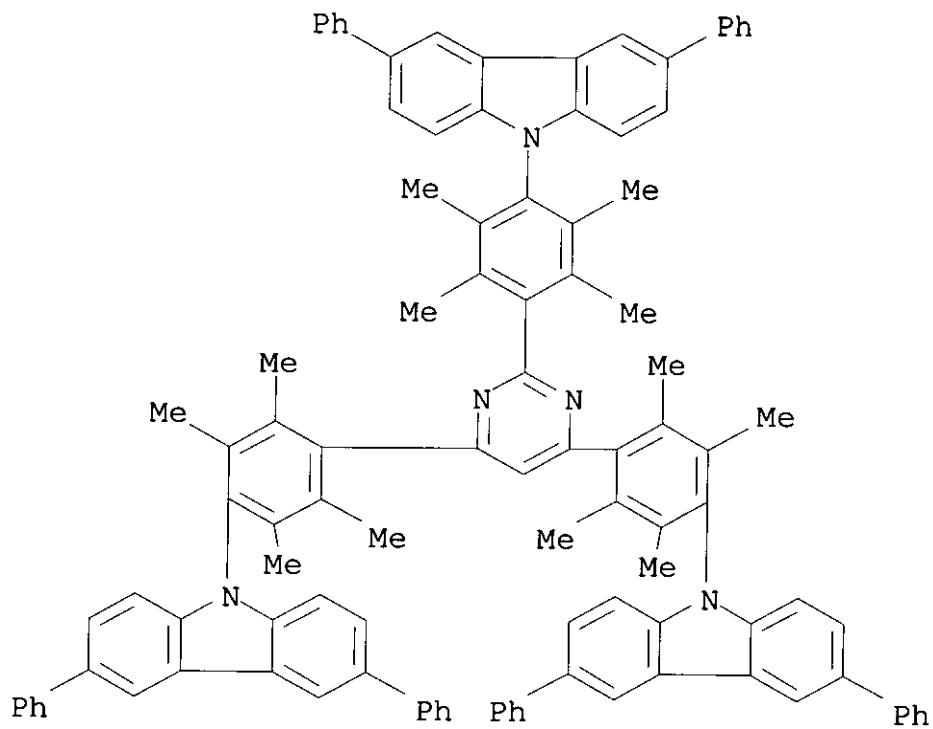
RN 699119-49-8 HCPLUS

CN 9H-Carbazole, 3,3',3'''-[2,4,6-pyrimidinetriyltris(2,5-dimethyl-4,1-phenylene)]tris[6-methyl-9-phenyl- (9CI) (CA INDEX NAME)



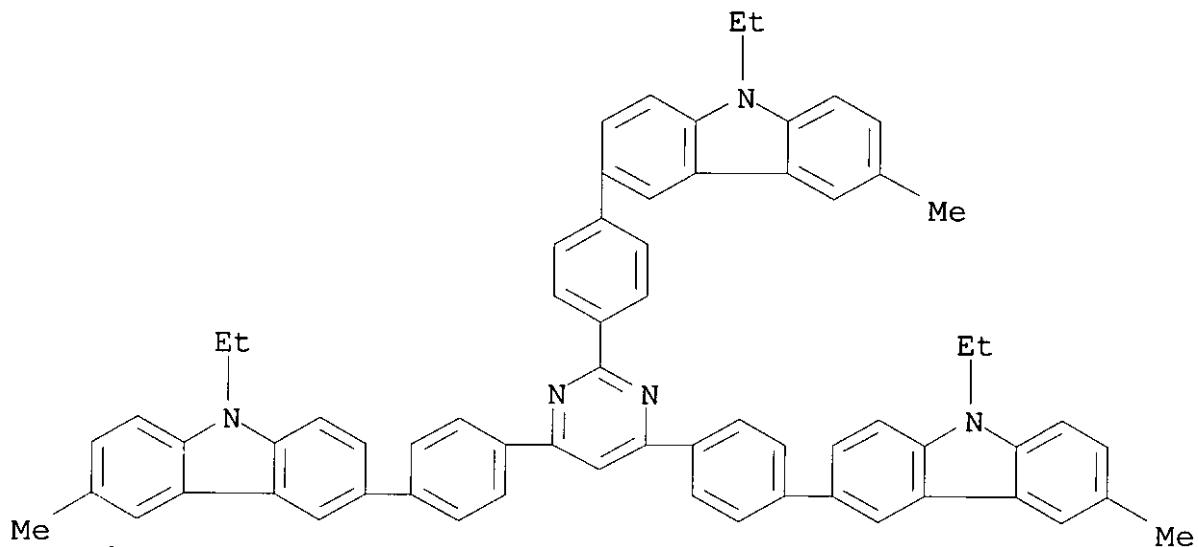
RN 699119-54-5 HCPLUS

CN 9H-Carbazole, 9,9',9'''-[2,4,6-pyrimidinetriyltris(2,3,5,6-tetramethyl-4,1-phenylene)]tris[3,6-diphenyl- (9CI) (CA INDEX NAME)



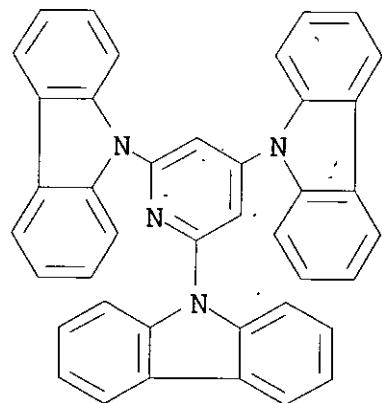
RN 699119-58-9 HCAPLUS

CN 9H-Carbazole, 3,3',3'''-(2,4,6-pyrimidinetriyltri-4,1-phenylene)tris[9-ethyl-6-methyl- (9CI) (CA INDEX NAME)



RN 699119-61-4 HCPLUS

CN 9H-Carbazole, 9,9',9'''-(2,4,6-pyridinetriyl)tris- (9CI) (CA INDEX NAME)

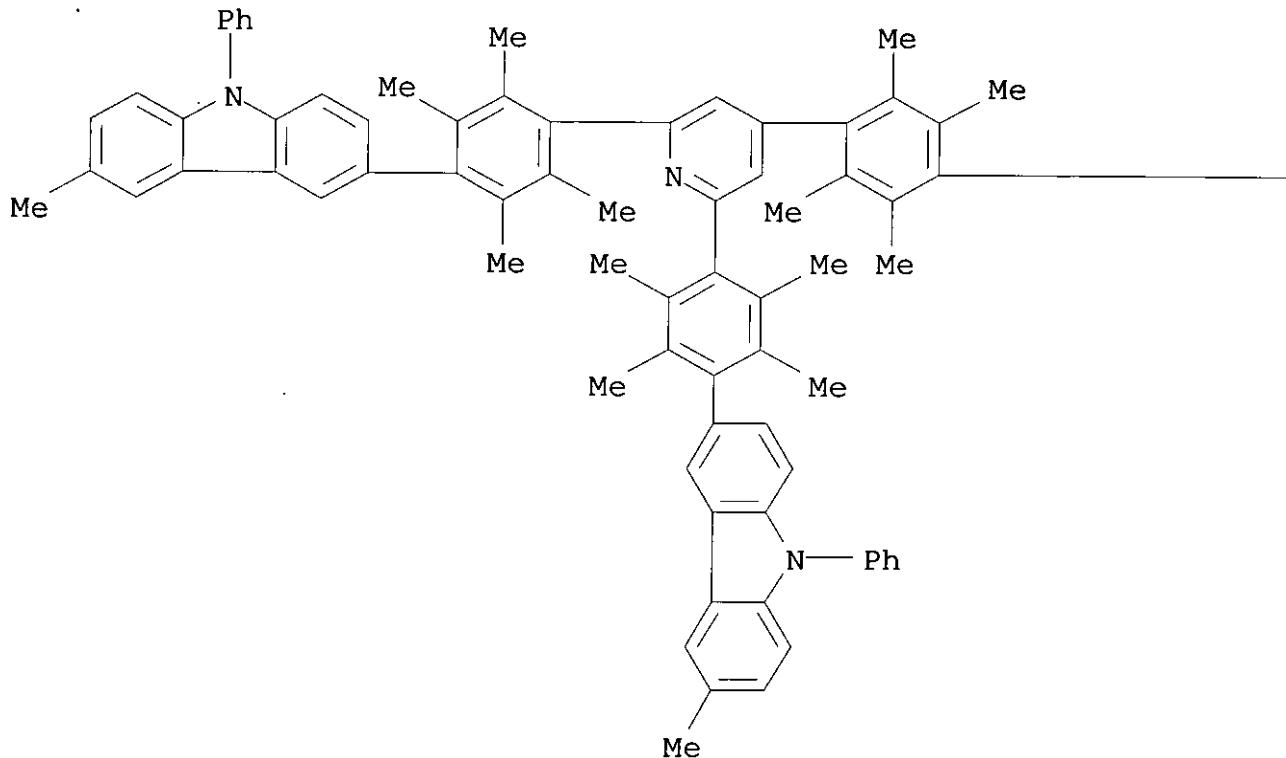


this is ok.

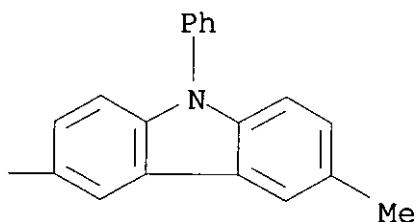
RN 699119-65-8 HCPLUS

CN 9H-Carbazole, 3,3',3'''-[2,4,6-pyridinetriyltris(2,3,5,6-tetramethyl-4,1-phenylene)]tris[6-methyl-9-phenyl- (9CI) (CA INDEX NAME)

PAGE 1-A

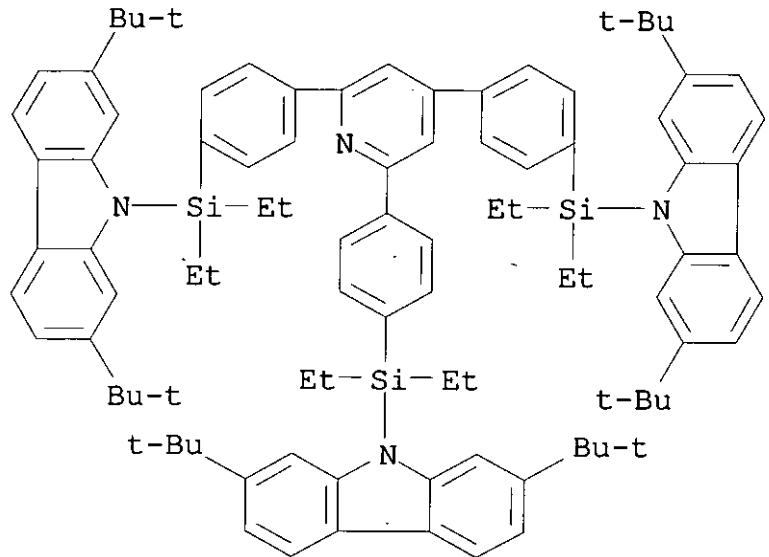


PAGE 1-B



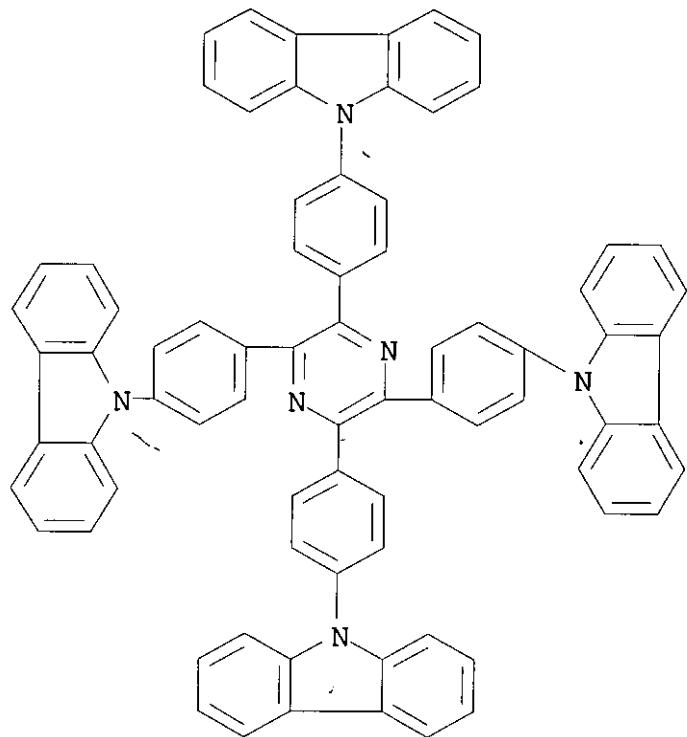
RN 699119-69-2 HCPLUS

CN 9H-Carbazole, 9,9',9'''-[2,4,6-pyridinetriyltris[4,1-phenylene(diethylsilylene)]]tris[2,7-bis(1,1-dimethylethyl)- (9CI)
(CA INDEX NAME)



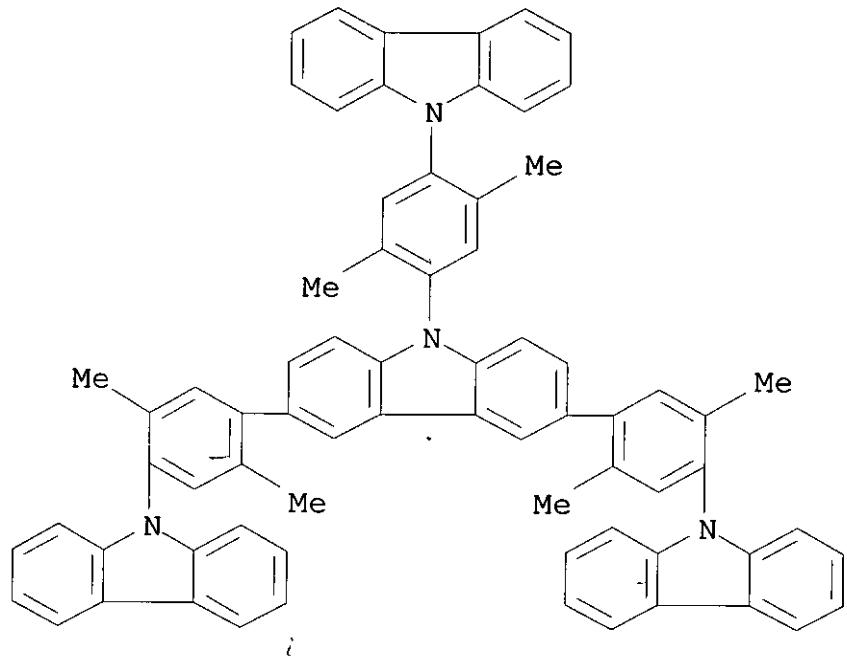
RN 699119-73-8 HCAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-(2,3,5,6-pyrazinetetrayltetra-4,1-phenylene)tetrakis- (9CI) (CA INDEX NAME)



RN 699119-77-2 HCAPLUS

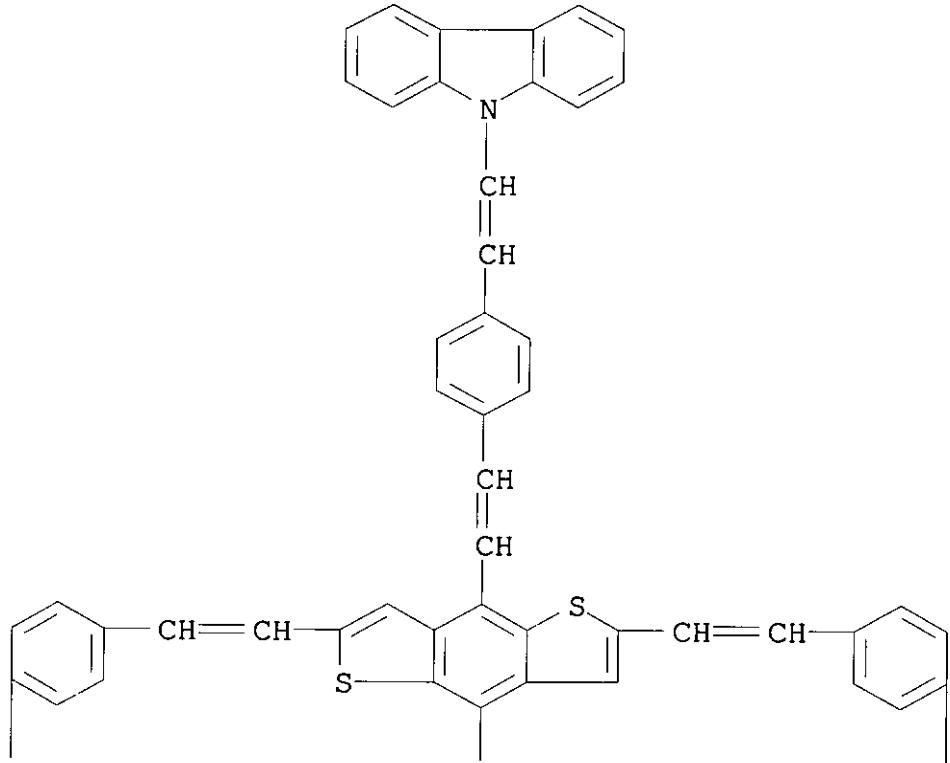
CN 9H-Carbazole, 3,6,9-tris[4-(9H-carbazol-9-yl)-2,5-dimethylphenyl]-(9CI) (CA INDEX NAME)



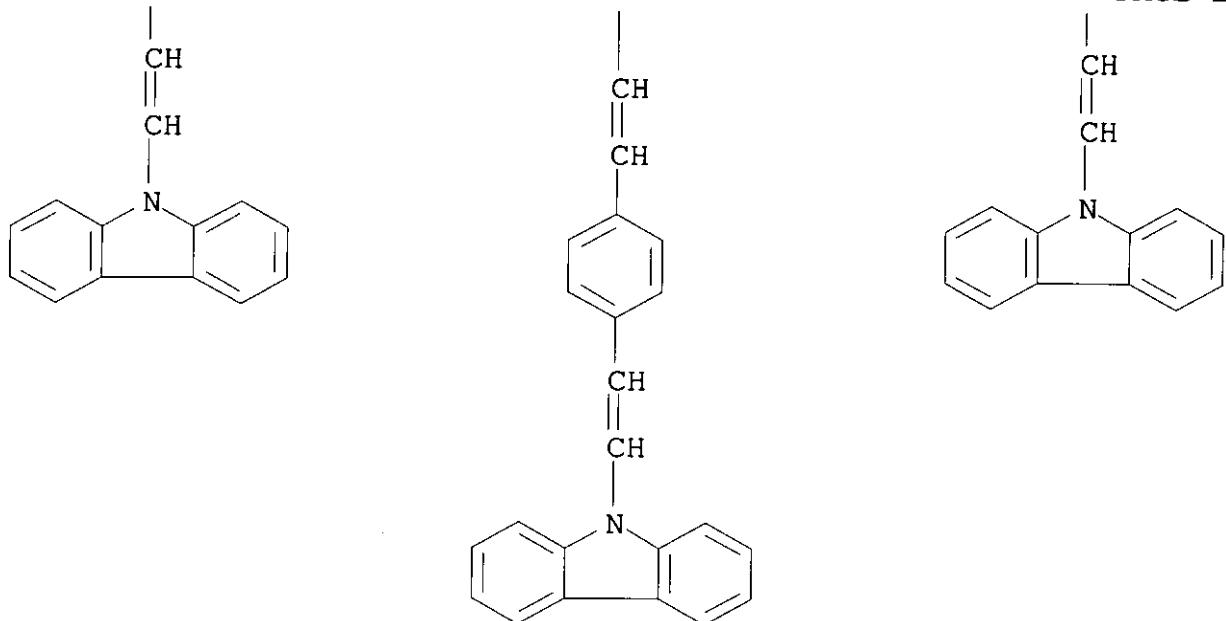
RN 699119-81-8 HCAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-[benzo[1,2-b:4,5-b']dithiophene-2,4,6,8-tetrayltetrakis(2,1-ethenediyl-4,1-phenylene-2,1-ethenediyl)]tetrakis- (9CI) (CA INDEX NAME)

PAGE 1-A

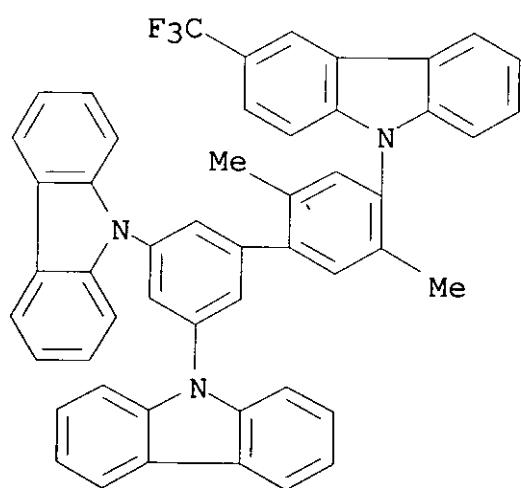


PAGE 2-A



RN 699119-86-3 HCPLUS

CN 9H-Carbazole, 9-[3',5'-bis(9H-carbazol-9-yl)-2,5-dimethyl[1,1'-biphenyl]-4-yl]-3-(trifluoromethyl)- (9CI) (CA INDEX NAME)

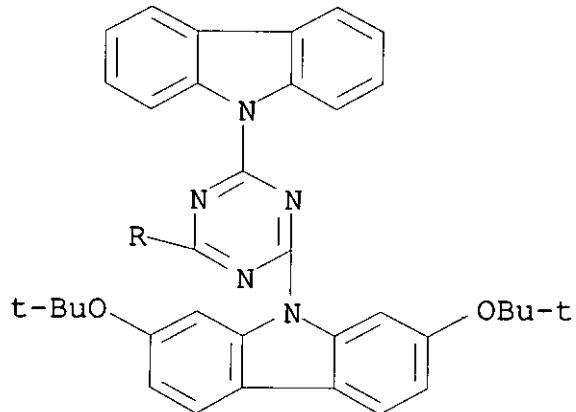


RN 699119-96-5 HCPLUS

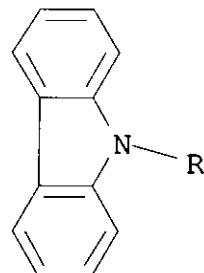
CN 9H-Carbazole, 9-[4,6-bis(9H-carbazol-9-yl)-1,3,5-triazin-2-yl]-2,7-

bis(1,1-dimethylethoxy)- (9CI) (CA INDEX NAME)

PAGE 1-A

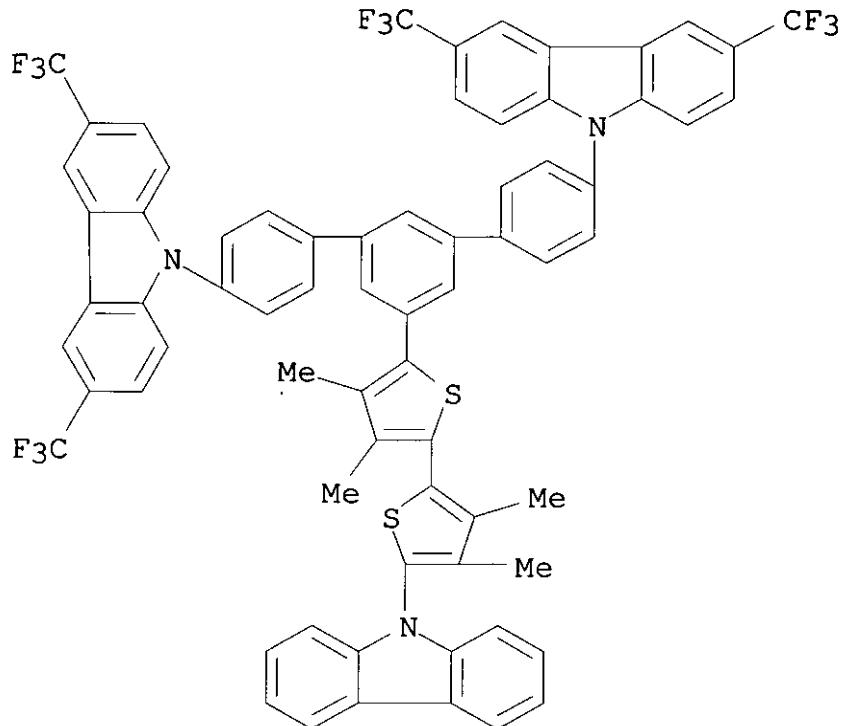


PAGE 2-A



RN 699120-00-8 HCAPLUS

CN 9H-Carbazole, 9,9'-[5'-(5'-(9H-carbazol-9-yl)-3,3',4,4'-tetramethyl[2,2'-bithiophen]-5-yl)[1,1':3',1''-terphenyl]-4,4''-diyl]bis[3,6-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)



IC ICM H05B033-14
 NCL 428690000; 428917000; 313504000; 313506000; 257102000; 257103000
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
 Other Related Properties)
 Section cross-reference(s): 74
 IT **699119-91-0P**
 (lorg. electroluminescent device and display having light
 emitting layer containing phosphorescent substance)
 IT **699119-36-3P 699119-40-9P 699119-44-3P**
699119-49-8P 699119-54-5P 699119-58-9P
699119-61-4P 699119-65-8P 699119-69-2P
699119-73-8P 699119-77-2P 699119-81-8P
699119-86-3P 699119-96-5P 699120-00-8P
 (organic electroluminescent device and display having light
 emitting layer containing phosphorescent substance)

L14 ANSWER 17 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:400207 HCPLUS
 DOCUMENT NUMBER: 141:147752
 TITLE: Dendron-Functionalized Macromolecules:

Enhancing Core Luminescence and Tuning Carrier
Injection

AUTHOR(S): Du, Pa; Zhu, Wei-Hong; Xie, Yu-Qing; Zhao, Fei; Ku, Chien-Fong; Cao, Yong; Chang, Chen-Pin; Tian, He

CORPORATE SOURCE: Lab for Advanced Materials and Institute of Fine Chemicals, East China University of Science Technology, Shanghai, 200237, Peop. Rep. China

SOURCE: Macromolecules (2004), 37(12), 4387-4398
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel series of naphthalimide dendrimers has been synthesized based on a convergent and divergent combined approach. The dendrimers consist of naphthalimide-based cores, Frechet-type poly(aryl ether) dendrons, and carbazole (CZ) or oxadiazole (OXZ) peripheral groups. The higher generation dendrimer has site-isolation effect, or the dilution effect of the dendrons. This configuration would reduce the aggregating extent or possibility of the core unit, thus resulting in a relatively small red-shift of absorption and fluorescent spectra when they form a solid film for the applications. Studies of steady-state fluorescence properties of the dendrimers show that excitation of the terminal chromophores results mainly in the core emission alone, as the donor emission is seriously quenched due to its effective Foerster intramol. energy transfer to the core. The dendrimers show enhanced luminescence properties of the core, and the enhanced luminescent efficiency is dependent on the generation number of the dendrimers. Time-resolved luminescent measurements further supported the conclusion that the contribution tendency for each peripheral donor is decreased with the increasing of the generation number, especially for the third generation. The dendron-incorporated carbazole unit can decrease the HOMO orbital energy by 0.4 eV, thus facilitating the hole-injection in **electroluminescent (EL)** devices. The preliminary **EL** results with a single-layer architecture made with the dendrimers by means of the spin-coating technique demonstrate that these dendrimers could be utilized as promising active nondoping emitters.

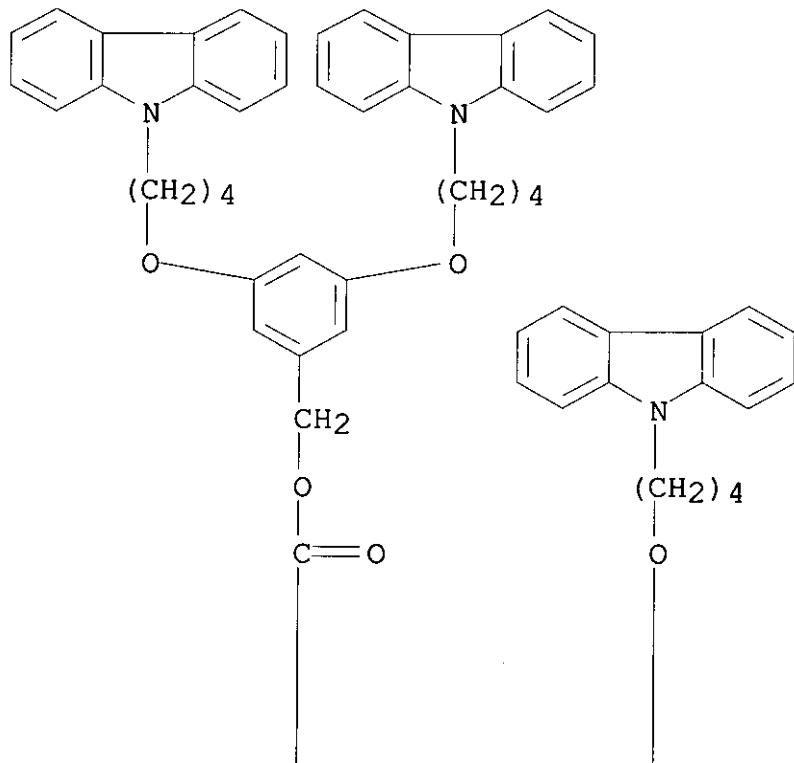
IT 724422-28-0P 724422-29-1P 727709-53-7P
727709-55-9P 727709-57-1P 727709-59-3P

(dendron-functionalized macromols. for enhancing core luminescence and tuning carrier injection)

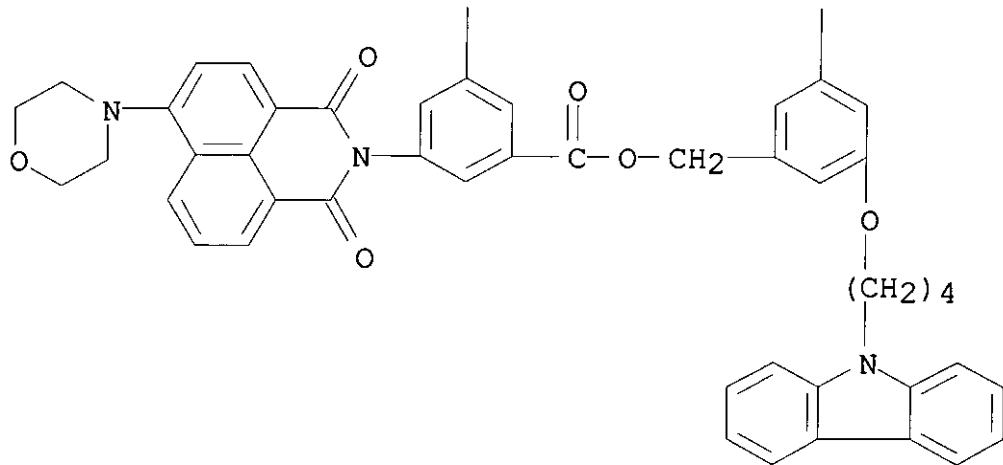
RN 724422-28-0 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, 5-[6-(4-morpholinyl)-1,3-dioxo-1H-benz[de]isoquinolin-2(3H)-yl]-, bis[[3,5-bis[4-(9H-carbazol-9-yl)butoxy]phenyl]methyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



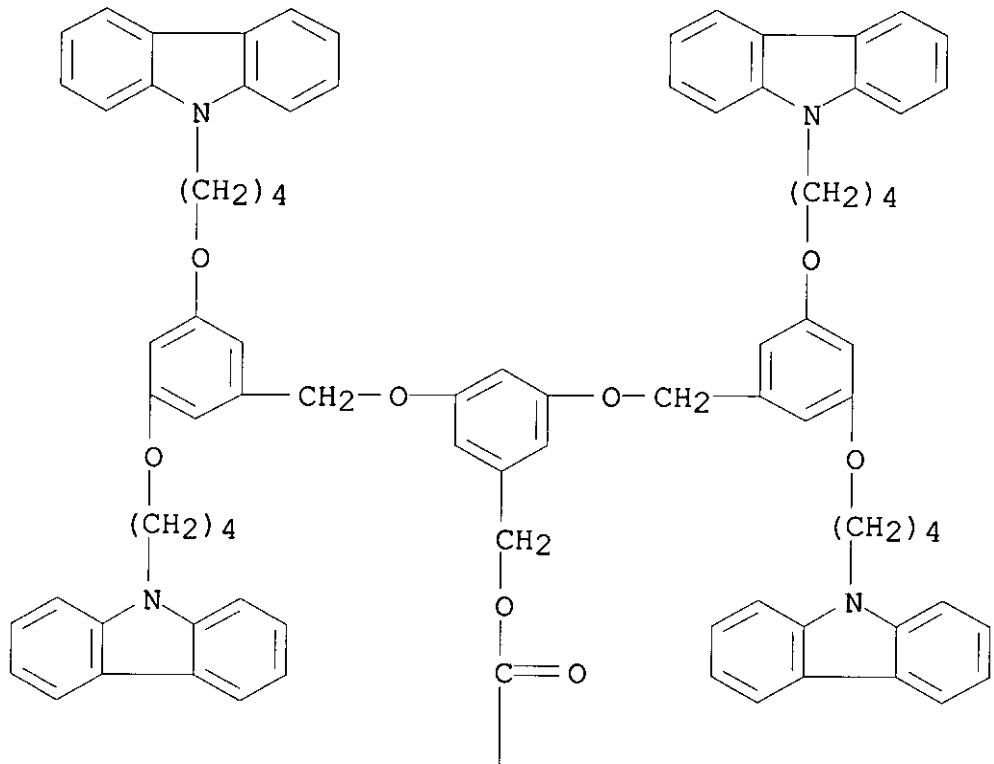
PAGE 2-A



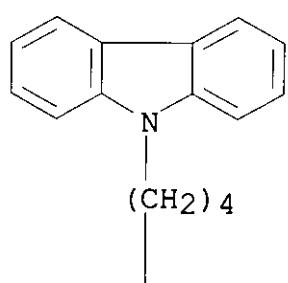
RN 724422-29-1 HCPLUS

CN 1,3-Benzenedicarboxylic acid, 5-[6-(4-morpholinyl)-1,3-dioxo-1H-benz[de]isoquinolin-2(3H)-yl]-, bis[[3,5-bis[3,5-bis[4-(9H-carbazol-9-yl)butoxy]phenyl]methoxy]phenyl]methyl ester (9CI)
(CA INDEX NAME)

PAGE 1-A

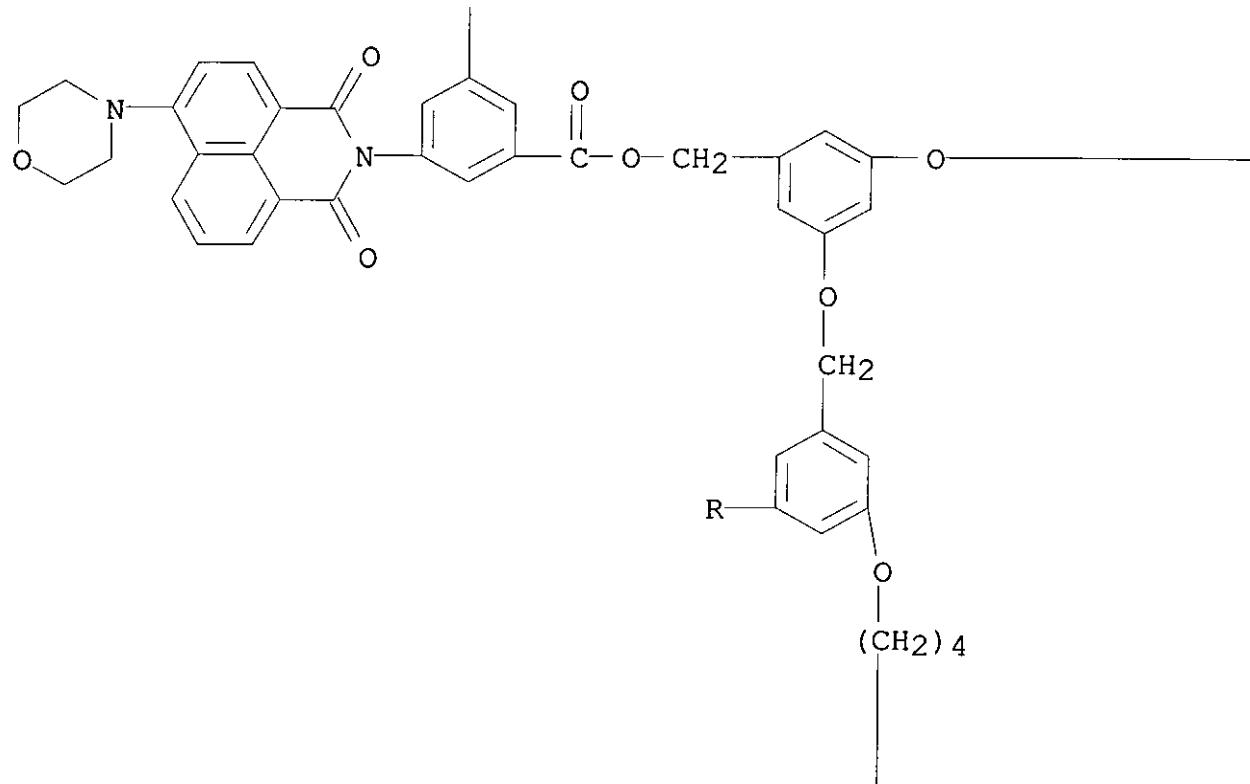


PAGE 1-B

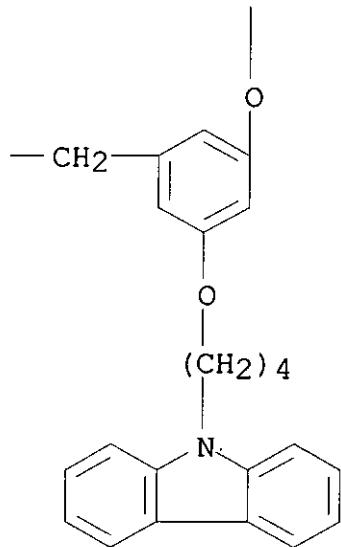


USHA SHRESTHA REM 4B28

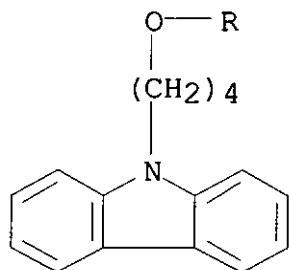
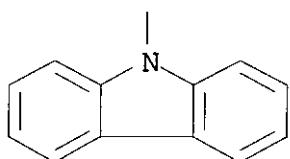
PAGE 2-A



PAGE 2-B



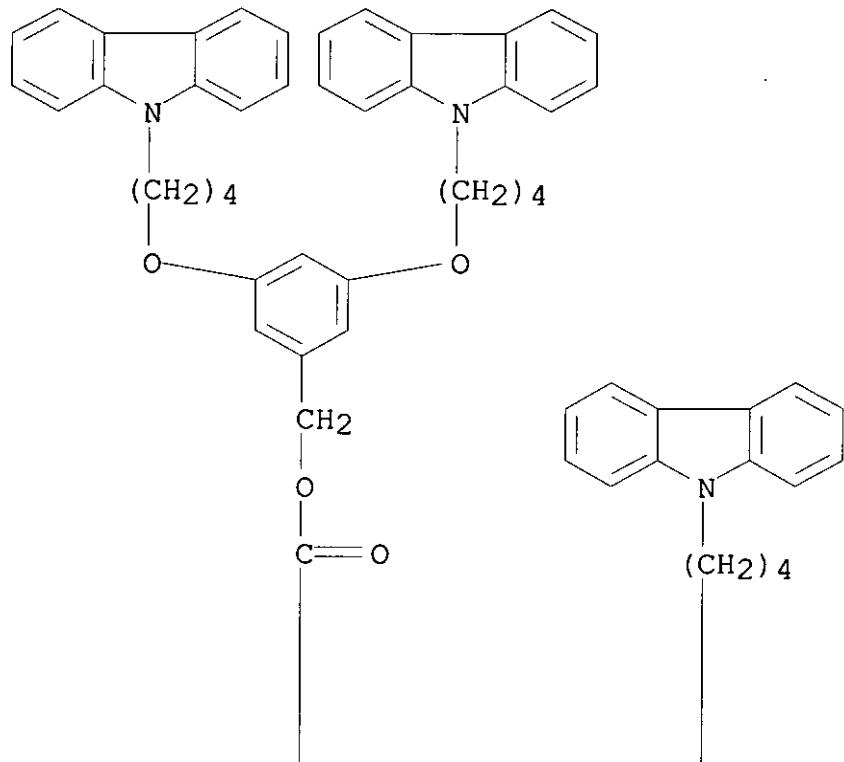
PAGE 3-A



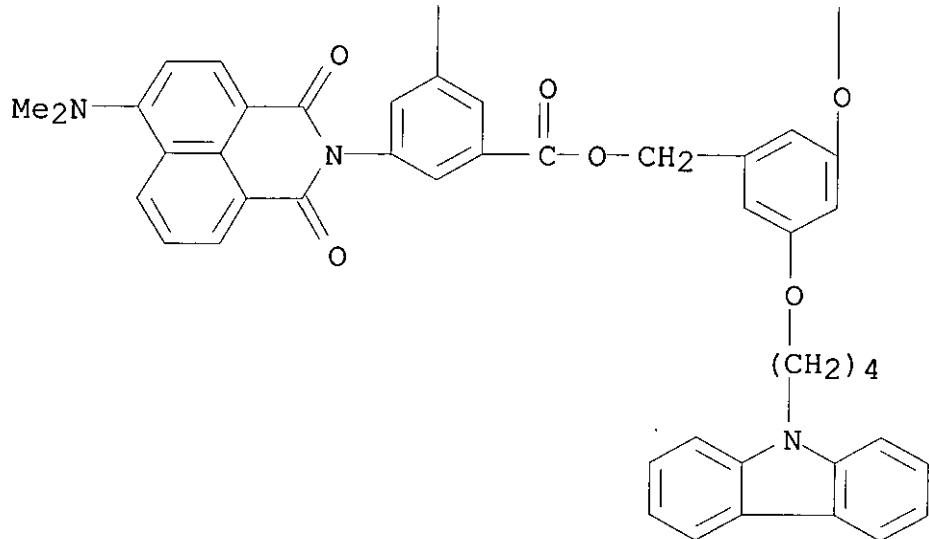
RN 727709-53-7 HCPLUS

CN 1,3-Benzenedicarboxylic acid, 5-[6-(dimethylamino)-1,3-dioxo-1H-benz[de]isoquinolin-2(3H)-yl]-, bis[[3,5-bis[4-(9H-carbazol-9-yl)butoxy]phenyl]methyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



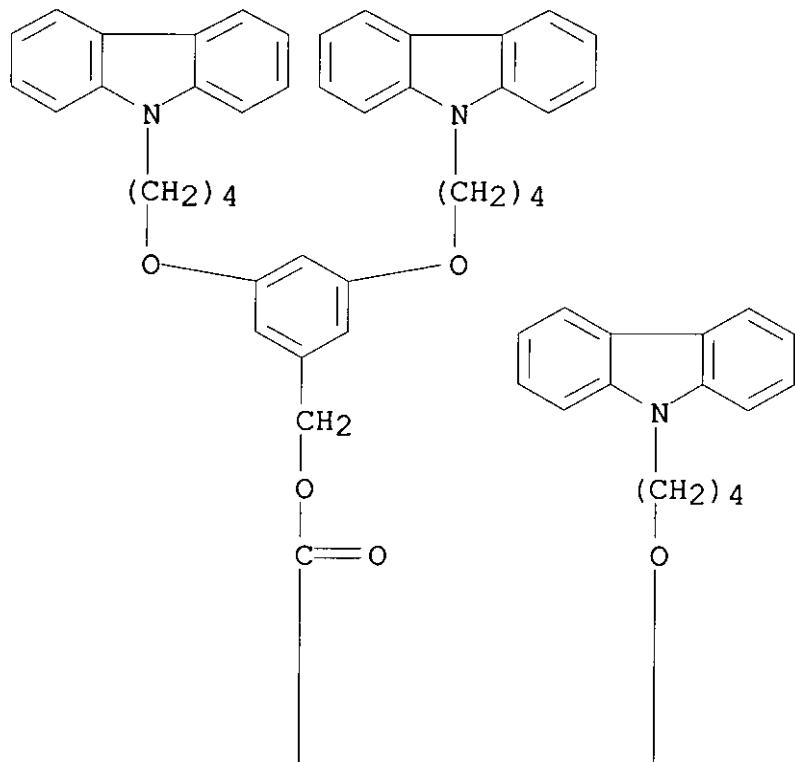
PAGE 2-A



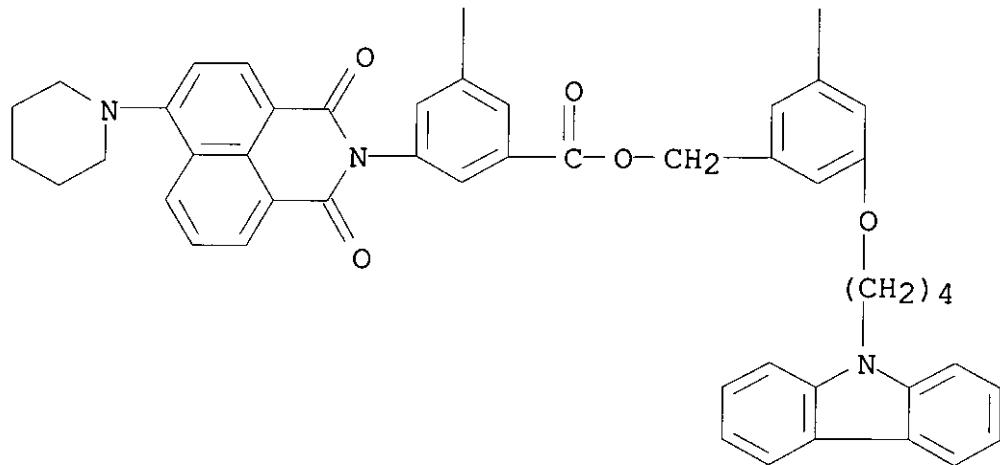
RN 727709-55-9 HCPLUS

CN 1,3-Benzenedicarboxylic acid, 5-[1,3-dioxo-6-(1-piperidinyl)-1H-benz[de]isoquinolin-2(3H)-yl]-, bis[[3,5-bis[4-(9H-carbazol-9-yl)butoxy]phenyl]methyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



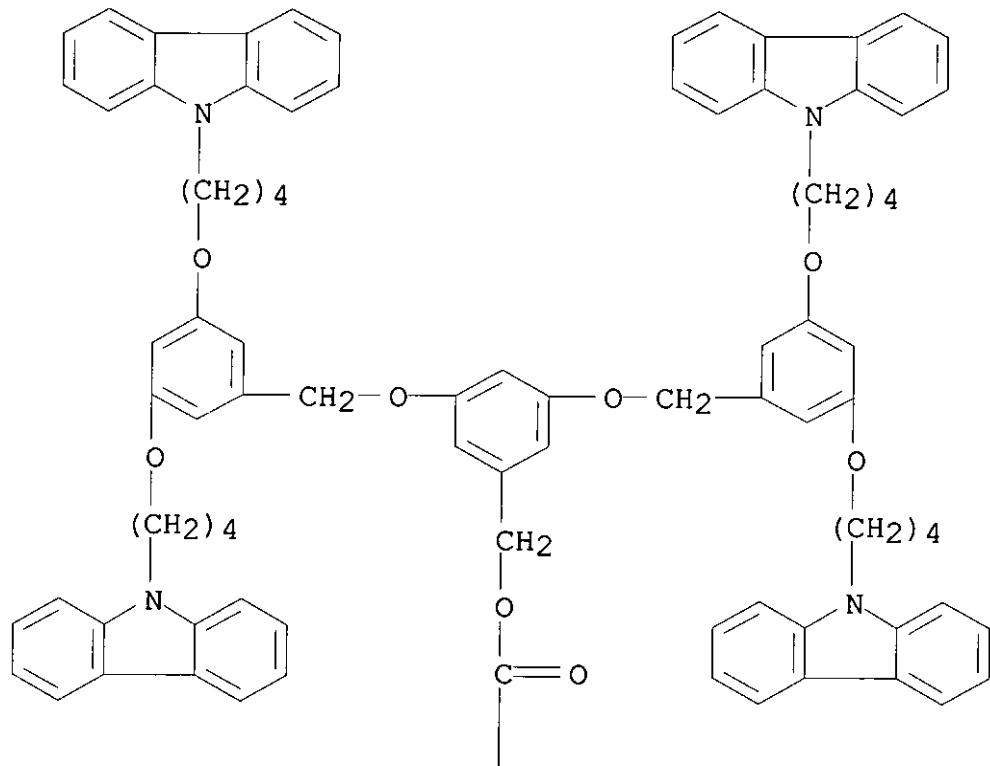
PAGE 2-A



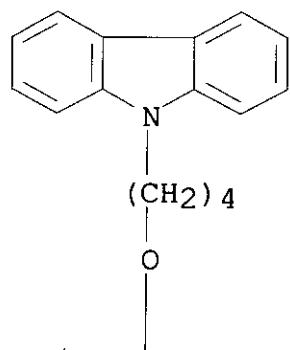
RN 727709-57-1 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, 5-[6-(dimethylamino)-1,3-dioxo-1H-benz[de]isoquinolin-2(3H)-yl]-, bis[[3,5-bis[[3,5-bis[4-(9H-carbazol-9-yl)butoxy]phenyl]methoxy]phenyl]methyl] ester (9CI)
(CA INDEX NAME)

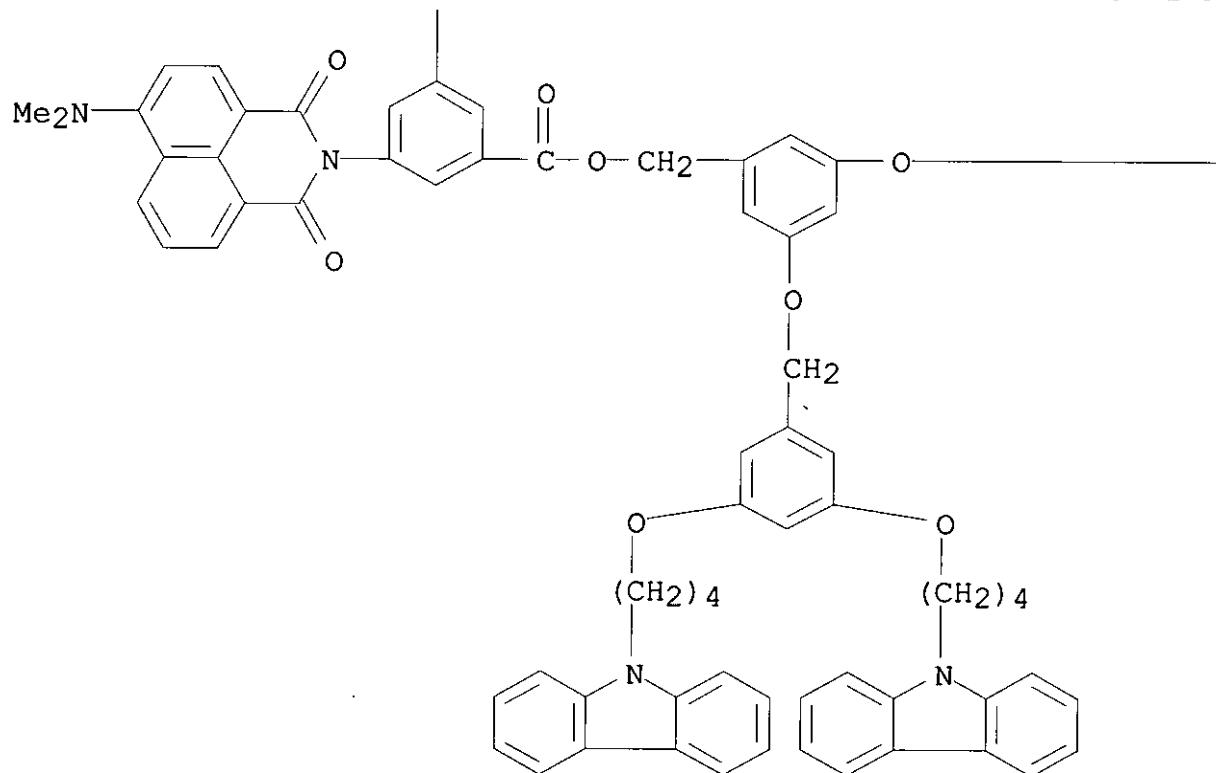
PAGE 1-A



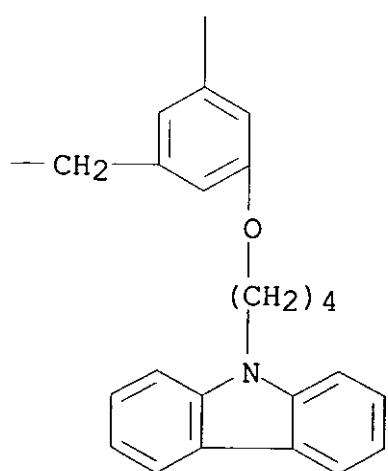
PAGE 1-B



PAGE 2-A



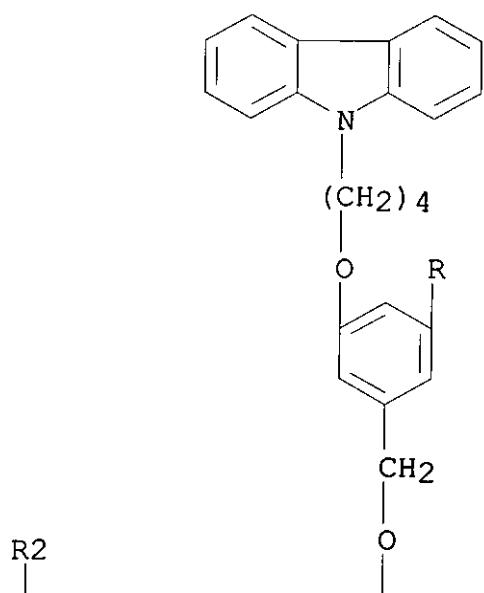
PAGE 2-B



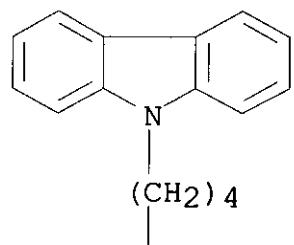
RN 727709-59-3 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, 5-[1,3-dioxo-6-(1-piperidinyl)-1H-benz[de]isoquinolin-2(3H)-yl]-, bis[[3,5-bis[3,5-bis[4-(9H-carbazol-9-yl)butoxy]phenyl]methoxy]phenyl]methyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A

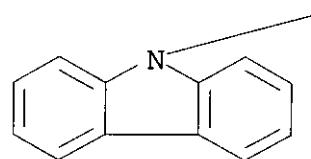
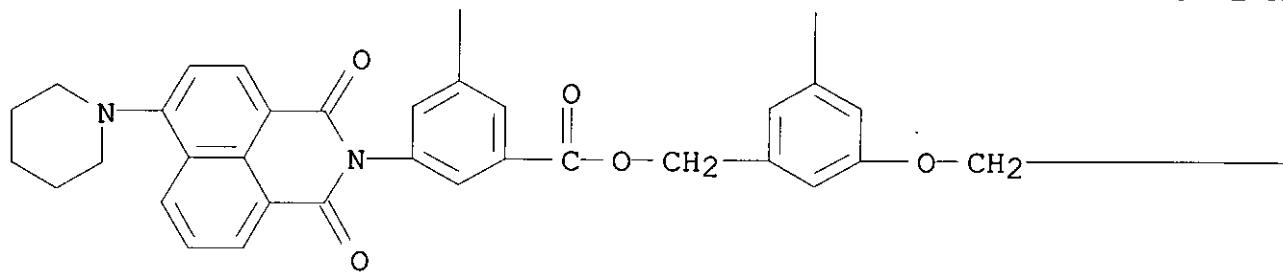


PAGE 1-B

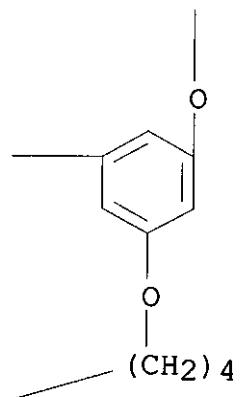


USHA SHRESTHA REM 4B28

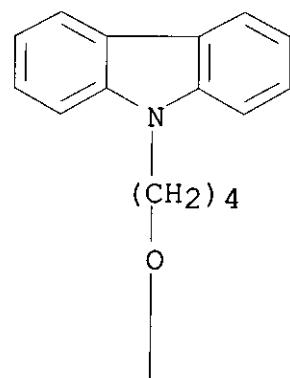
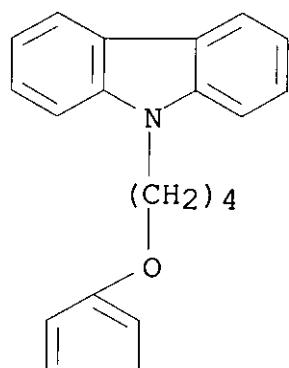
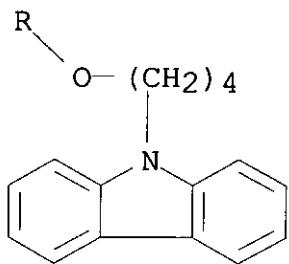
PAGE 2-A

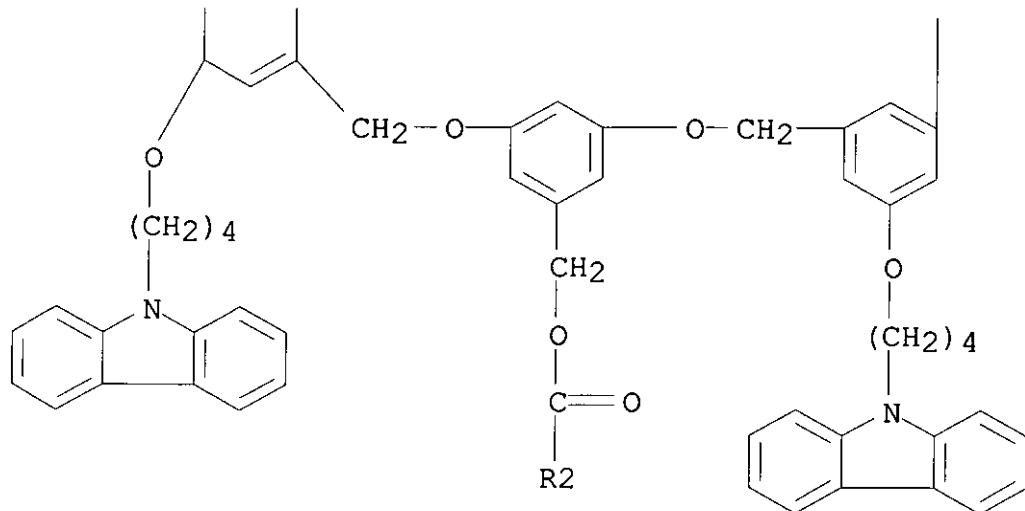


PAGE 2-B



PAGE 3-A





CC 73-11 (**Optical, Electron, and Mass Spectroscopy and Other Related Properties**)

Section cross-reference(s): 22, 38

IT 724422-27-9P **724422-28-0P 724422-29-1P**

727709-43-5P 727709-45-7P 727709-46-8P 727709-48-0P

727709-49-1P 727709-50-4P 727709-51-5P 727709-52-6P

727709-53-7P 727709-55-9P 727709-57-1P

727709-59-3P

(dendron-functionalized macromols. for enhancing core luminescence and tuning carrier injection)

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 18 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:380872 HCAPLUS

DOCUMENT NUMBER: 141:113740

TITLE: Very high-efficiency and low voltage phosphorescent organic light-emitting diodes based on a p-i-n junction

AUTHOR(S): He, Gufeng; Schneider, Oliver; Qin, Dashan; Zhou, Xiang; Pfeiffer, Martin; Leo, Karl

CORPORATE SOURCE: Institut fuer Angewandte Photophysik, Technische Universitaet Dresden, Dresden, D-01062, Germany

SOURCE: Journal of Applied Physics (2004), 95(10), 5773-5777

CODEN: JAPIAU; ISSN: 0021-8979

American Institute of Physics

PUBLISHER:

DOCUMENT TYPE:

Journal

LANGUAGE:

English

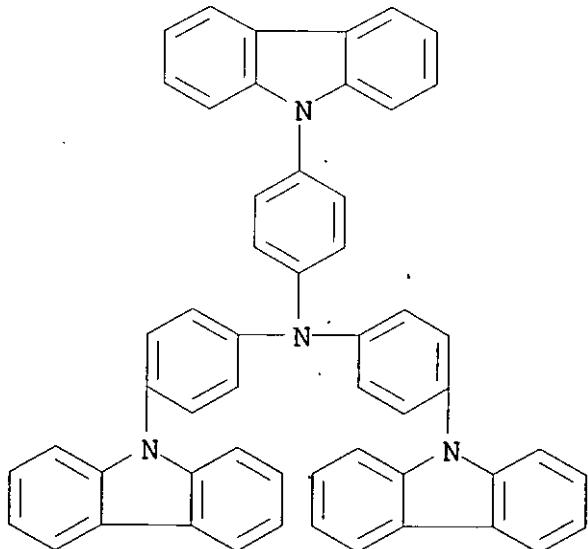
AB Green phosphorescent organic light-emitting devices (OLEDs) employing tris(2-phenylpyridine) Ir doped into a wide energy gap hole transport host were studied. N,N,N',N'-tetrakis(4-methoxyphenyl)-benzidine doped with 2,3,5,6-tetrafluoro-7,7,8,8-tetracyanoquinodimethane is used as a hole injection and transport layer, 4,7-diphenyl-1,10-phenanthroline and Cs are coevaporated as a n-doped electron transport layer, and an intrinsic emission layer is sandwiched between these 2 doped layer. Such a p-i-n device features efficient carrier injection from both contacts into the doped transport layers and low ohmic losses in these highly conductive layers. Thus, low operating voltages are obtained compared to conventional undoped OLEDs. By modifying the device structure, the authors optimized the carrier balance in the emission layer and at its interfaces. For the optimized device, the maximum power efficiency is 53 lm/W, and a luminance of 1000 cd/m² is reached at 3.1 V with a power efficiency of 45 lm/W.

IT 139092-78-7, 4,4',4''-Tris(N-carbazolyl)triphenylamine
(very high-efficiency and low voltage phosphorescent organic

LEDs based on p-i-n junction containing)

RN 139092-78-7 HCPLUS

CN Benzenamine, 4-(9H-carbazol-9-yl)-N,N-bis[4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 7789-24-4, Lithium fluoride, uses 94928-86-6,
Tris(2-phenylpyridine) Iridium **139092-78-7**,
4,4',4''-Tris(N-carbazolyl)triphenylamine 189363-47-1,
2,2',7,7'-Tetrakis(diphenylamino)-9,9'-spirobifluorene
(very high-efficiency and low voltage phosphorescent organic
LEDs based on p-i-n junction containing)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L14 ANSWER 19 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:371815 HCAPLUS

DOCUMENT NUMBER: 141:147748

TITLE: Efficient organic electrophosphorescent
white-light-emitting device with a triple
doped emissive layer

AUTHOR(S): D'Andrade, Brian W.; Holmes, Russell J.;
Forrest, Stephen R.

CORPORATE SOURCE: Department of Electrical Engineering,
Princeton University, Princeton, NJ, 08544,
USA

SOURCE: Advanced Materials (Weinheim, Germany) (2004),
16(7), 624-628

PUBLISHER: CODEN: ADVMEW; ISSN: 0935-9648

DOCUMENT TYPE: Wiley-VCH Verlag GmbH & Co. KGaA

LANGUAGE: English

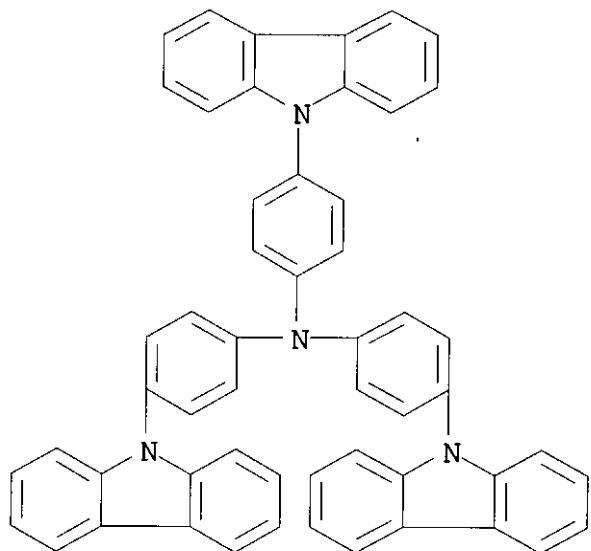
AB A high efficiency white organic LED with a thin electrophosphorescent triple doped host and efficient exciton and charge confinement is demonstrated. Devices have $\eta_p = 14 \pm 1$ lm W-1 at 10 mA cm-2, a maximum $\eta_l = 42 \pm 4$ lm W-1 and CIE coordinates that vary from [0.43, 45] at 0.1 mA cm-2 to [0.38, 0.45] at 10 mA cm-2, with CRI = 80. The device emission color is effectively controlled by varying dopant concns. As in the case of recently reported deep-blue-emitting electrophosphorescent OLEDs, high efficiency is obtained by direct triplet formation on the blue dopant by near-resonant charge transfer from nearby charge injection layers, avoiding exchange energy losses incurred by energy transfer from a singlet exciton state in the host to a triplet state in the phosphor.

IT **139092-78-7**

(efficient organic electrophosphorescent white **LED** with triple doped emissive layer containing)

RN 139092-78-7 HCAPLUS

CN Benzenamine, 4-(9H-carbazol-9-yl)-N,N-bis[4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 18856-08-1 **139092-78-7** 192198-85-9,

1,3,5-Tris(N-phenylbenzimidazol-2-yl)benzene

(efficient organic electrophosphorescent white **LED** with triple doped emissive layer containing)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 20 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:319845 HCAPLUS

DOCUMENT NUMBER: 141:130934

TITLE: Electroluminescence of LEDs consisting two layers of Alq₃ and high T_g, blue-light emitting branched compounds

AUTHOR(S): Cha, Soon Wook; Jin, Jung-Il

CORPORATE SOURCE: Center for Elecro- and Photo-Responsive Molecules, Department of Chemistry, Korea

SOURCE: University, Seoul, 136-701, S. Korea
Synthetic Metals (2004), 143(1), 97-101
CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

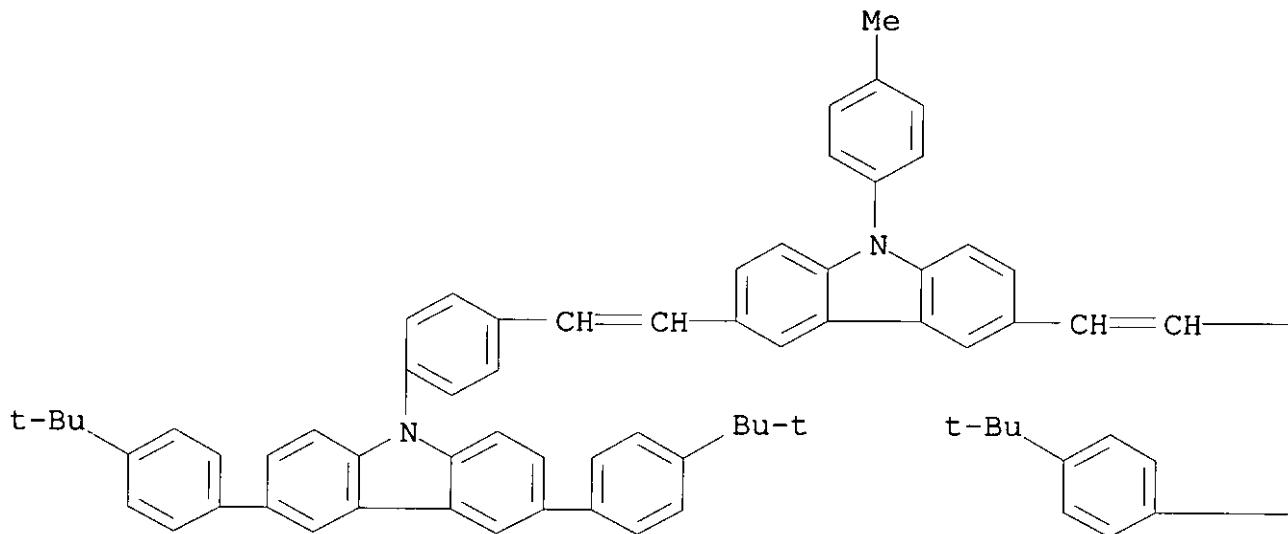
AB Two high glass transition (T_g) ($>250^\circ$) organic compds., Cz3d and tris-[4-(2-{4-[3,6-bis(4-t-butylphenyl)carbazole-9-yl]phenyl}vinyl)phenyl]amine (TPA-Cz3d), containing three carbazole moieties were used in the construction of bilayer devices consisting of the compds. and tris(8-hydroquinolinato)aluminum (Alq_3) layers. TAP-Cz3d has the tri-Ph amine moiety as a core. They themselves performed poorly as blue-light emitters in single layer LEDs. The bilayer devices revealed much improved electroluminescence (EL) properties emitting light of maximum brightness of 7400-13,000 Cd/m² with an external quantum efficiency approaching 0.6%. But emitted light of the bilayer devices was not from the organic layer but was from Alq_3 layer indicating that the two compds. was efficient hole transporters. In all the devices, In Sn oxide (ITO)-coated glass and a Li/Al alloy were used as anode and cathode, resp.

IT **535995-35-8 723343-48-4**
(electroluminescence of LEDs consisting two layers of Alq_3 and high T_g , blue-light emitting branched compds. and optical properties of emitters)

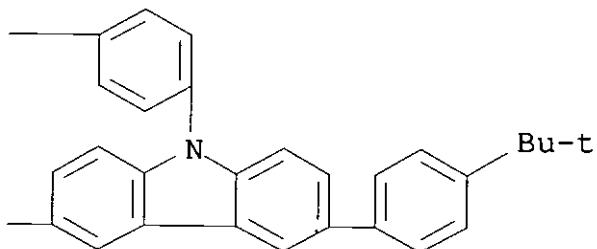
RN 535995-35-8 HCPLUS

CN 9H-Carbazole, 3,6-bis[2-[4-[3,6-bis[4-(1,1-dimethylethyl)phenyl]-9H-carbazol-9-yl]phenyl]ethenyl]-9-(4-methylphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

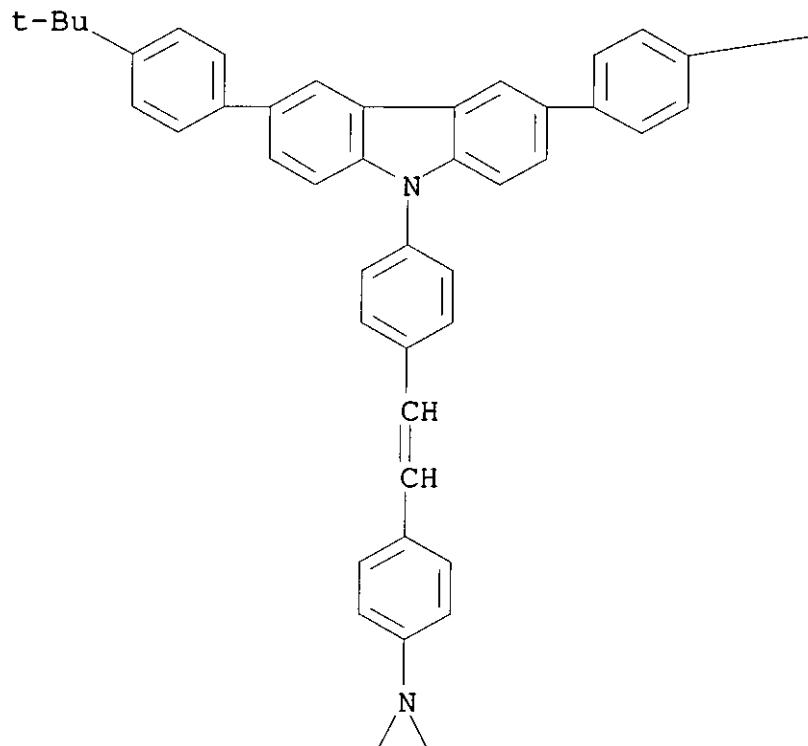


RN 723343-48-4 HCPLUS

CN Benzenamine, 4-[2-[4-[3,6-bis[4-(1,1-dimethylethyl)phenyl]-9H-carbazol-9-yl]phenyl]ethenyl]-N,N-bis[4-[2-[4-[3,6-bis[4-(1,1-

dimethylethyl)phenyl]-9H-carbazol-9-yl]phenyl]ethenyl]phenyl]-
(9CI) (CA INDEX NAME)

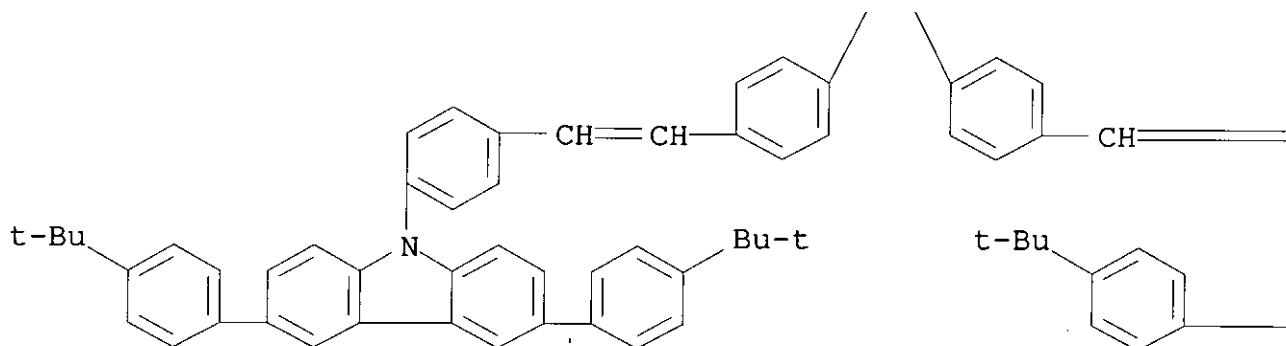
PAGE 1-A



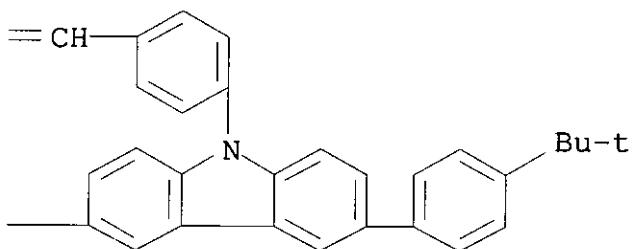
PAGE 1-B

—Bu-t

PAGE 2-A



PAGE 2-B



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22

IT 2085-33-8, Aluminum tris(8-hydroxyquinolinato) **535995-35-8**

723343-48-4

(electroluminescence of LEDs consisting two layers of Alq₃ and high T_g, blue-light emitting branched compds. and optical properties of emitters)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 21 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:174889 HCAPLUS

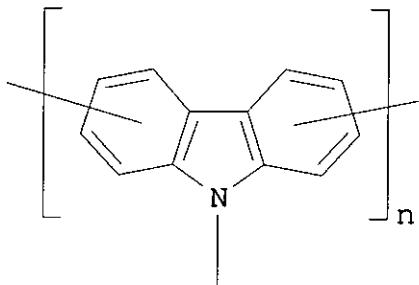
DOCUMENT NUMBER: 142:29538

TITLE: Host materials for triplet emitters

AUTHOR(S): Anon.
 CORPORATE SOURCE: Neth.
 SOURCE: IP.com Journal (2003), 4(1), 26 (No.
 IPCOM000021063D), 19 Dec 2003
 CODEN: IJPOBX; ISSN: 1533-0001
 PUBLISHER: IP.com, Inc.
 DOCUMENT TYPE: Journal; Patent
 LANGUAGE: English
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IP 21063D		20031219	IP 2003-21063D	
PRIORITY APPLN. INFO.:				
20031219				

GI



I

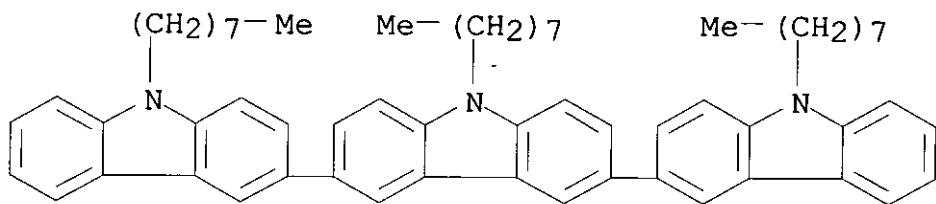
AB Carbazole compds. are described by the general formula I ($n \geq 2$) in which each carbazole unit may be (un)substituted with ≥ 1 substituents. The carbazole compds. may be combined with **light-emitting** compds. (e.g., triplet emitter compds.) capable of accepting energy from the carbazole compds. **Electroluminescent** devices employing the compds. or the **light-emitting** compound-carbazole compound combinations are also described.

IT **628336-90-3P 714972-57-3P**
 (oligomeric or polymeric carbazole compds. and luminescent compns. containing them and electroluminescent devices using them)

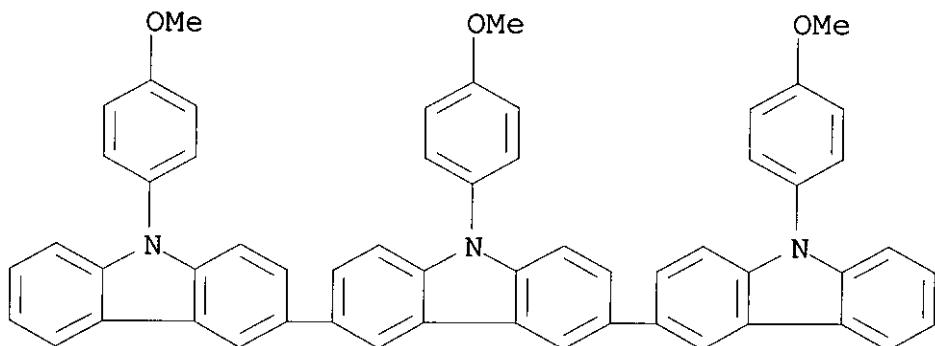
RN 628336-90-3 HCAPLUS

CN 3,3':6',3'''-Ter-9H-carbazole, 9,9',9'''-trioctyl- (9CI) (CA INDEX)

NAME)



RN 714972-57-3 HCAPLUS
 CN 3,3':6',3''-Ter-9H-carbazole, 9,9',9'''-tris(4-methoxyphenyl)-
 (9CI) (CA INDEX NAME)



CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
 Other Related Properties)
 Section cross-reference(s): 27, 76
 IT 57102-48-4P 193017-42-4P **628336-90-3P**
714972-57-3P
 (oligomeric or polymeric carbazole compds. and luminescent
 compns. containing them and electroluminescent devices using them)

L14 ANSWER 22 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:159347 HCAPLUS
 DOCUMENT NUMBER: 140:189778
 TITLE: Tetra(aminoaryl)methanes as electroluminescent
 substances for organic electroluminescent
 devices, and their manufacture
 INVENTOR(S): Hashimoto, Mitsuru
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd.,
 Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

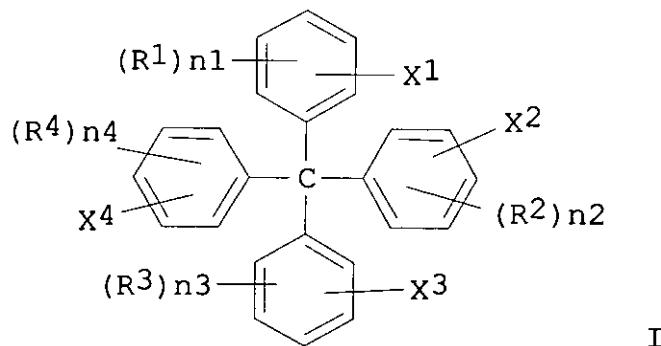
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004059556	A2	20040226	JP 2002-224049	2002 0731
PRIORITY APPLN. INFO.:			JP 2002-224049	2002 0731

OTHER SOURCE(S) : MARPAT 140:189778

GI



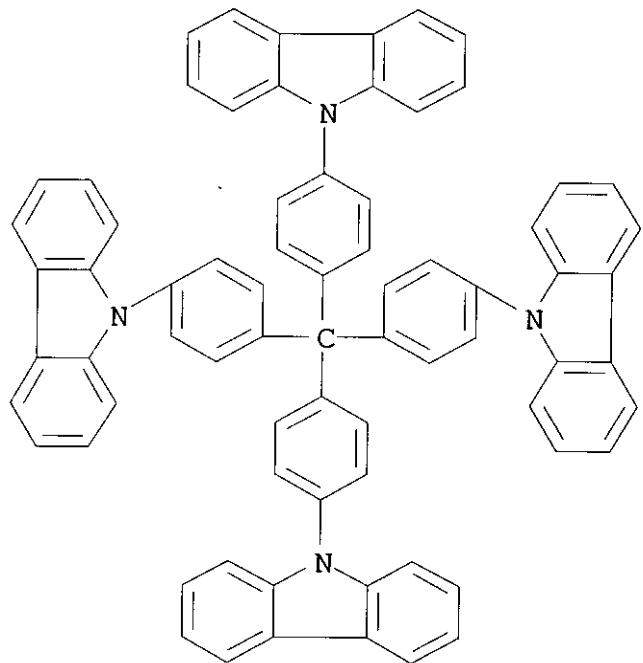
AB The tetra(aminoaryl)methanes I ($X_1 = NR_{11}R_{111}$; $X_2 = NR_{12}R_{112}$; $X_3 = NR_{13}R_{113}$; $X_4 = NR_{14}R_{114}$; $R_{11}-R_{14}$, $R_{111}-R_{114}$ = aromatic hydrocarbyl, heterocyclic group; R_1-R_4 = alkyl, alkoxy, halo, cyano, NO_2 ; $n_1-n_4 = 0-4$) are manufactured by treatment of $R_{10}R_{100}NM$ (R_{10} , R_{100} = aromatic hydrocarbyl, heterocyclic group; $M = H, Na, K$) with I [$X = Cl, Br, iodide$; R_1-R_4 , n_1-n_4 = same as above]. The organic **electroluminescent** devices show high luminescent intensity at low voltage and long service life.

IT **255721-13-2P**

(manufacture of tetra(aminoaryl)methanes as electroluminescent substances for organic electroluminescent devices)

RN 255721-13-2 HCAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-(methanetetracyltetra-4,1-phenylene)tetrakis- (9CI) (CA INDEX NAME)



IC ICM C07C211-54

ICS C07C209-10; C07D209-88; G03G005-06; H05B033-14; H05B033-22; C09K011-06

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 25

IT **255721-13-2P** 255824-08-9P

(manufacture of tetra(aminoaryl)methanes as electroluminescent substances for organic electroluminescent devices)

L14 ANSWER 23 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:102181 HCAPLUS

DOCUMENT NUMBER: 140:294453

TITLE: Efficient organic blue-light-emitting devices with double confinement on terfluorenes with

AUTHOR(S): ambipolar carrier transport properties
Wu, Chung-Chih; Lin, Yu-Ting; Wong, Ken-Tsung;
Chen, Ruei-Tang; Chien, Yuh-Yih

CORPORATE SOURCE: Department of Electrical Engineering, Graduate
Institute of Electro-optical Engineering and
Graduate Institute of Electronics Engineering,
National Taiwan University, Taipei, 106,
Taiwan

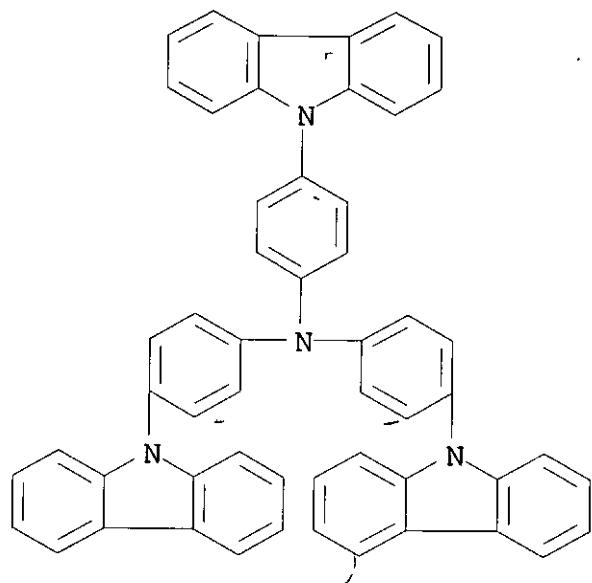
SOURCE: Advanced Materials (Weinheim, Germany) (2004),
16(1), 61-65
CODEN: ADVMEW; ISSN: 0935-9648
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Ter(9,9-diarylfluorene)s (TDAFs) exhibit many intriguing properties promising for blue light-emitting devices, such as high thin-film luminescence quantum yields (.apprx.90%), high glass-transition temps. (>200°), and an unusual ambipolar carrier-transport capability. Successful implementation of a double-heterostructure device configuration that provides effective confinement of both carriers and excitons in TDAFs results in an electroluminescence performance (5.3% external quantum efficiency) promising for application in blue-emitting devices.

IT 139092-78-7, 4,4',4'''-Tris(N-carbazolyl)triphenylamine
(in efficient organic blue LEDs with double confinement
on terfluorenes with ambipolar carrier transport properties)

RN 139092-78-7 HCPLUS

CN Benzenamine, 4-(9H-carbazol-9-yl)-N,N-bis[4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 76

IT 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline

139092-78-7, 4,4',4''-Tris(N-carbazolyl)triphenylamine

192198-85-9, 2,2',2'''-(1,3,5-Benzenetriyl)tris[1-phenyl-1H-benzimidazole]

(in efficient organic blue LEDs with double confinement
on terfluorenes with ambipolar carrier transport properties)

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L14 ANSWER 24 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:874704 HCAPLUS

DOCUMENT NUMBER: 139:371586

TITLE: Carbazole-based materials for guest-host
electroluminescent systems

INVENTOR(S): Thoms, Travis P. S.; Chen, Jian-Ping

PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: U.S. Pat. Appl. Publ., 10, pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

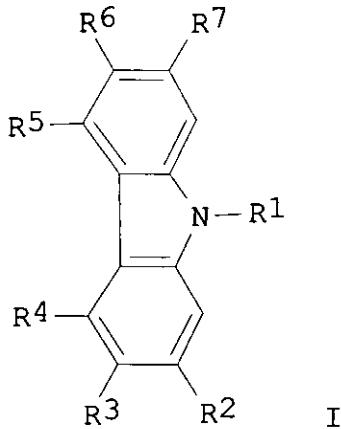
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003205696	A1	20031106	US 2002-131382	2002 0425
JP 2003317966	A2	20031107	JP 2003-114193	2003 0418
PRIORITY APPLN. INFO.:			US 2002-131382	A 2002 0425

OTHER SOURCE(S) : MARPAT 139:371586
GI



AB Guest-host emissive systems for use in an organic **light-emitting** device are described which comprise a guest and a host, where the host comprises a carbazole-based compound with formula (I), where R1 is an electron-donating group, and at least one of R2-7 is an aromatic amine or carbazole moiety having hole transport capability, and where the guest is a **light-emitting** compound having smaller band gap than the host. Guest-host emissive systems for use in an organic **light-emitting** device are described which comprise a host and a guest, where the host comprises a core selected from the group consisting of C, benzene, furan, thiophene, pyrrole and

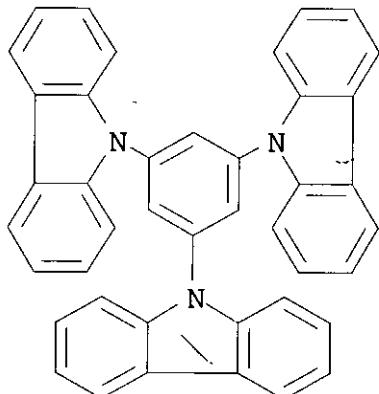
tetraphenylmethane, and ≥ 2 carbazole groups or carbazole groups substituted with electron-donating groups bonded to the core, and where the guest is a **light-emitting** material having a smaller band gap potential than the host. The disclosed host materials have a large band gap potential and high-energy triplet excited states to permit short-wavelength phosphorescent emission by the associated guest material.

IT **148044-07-9P**

(host; carbazole-based materials for guest-host electroluminescent systems)

RN 148044-07-9 HCPLUS

CN 9H-Carbazole, 9,9',9'''-(1,3,5-benzenetriyl)tris- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

ICS H05B033-14

NCL 252301160; 428690000; 428917000; 313504000

CC 73-5 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

IT **148044-07-9P**

(host; carbazole-based materials for guest-host electroluminescent systems)

L14 ANSWER 25 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:758033 HCPLUS

DOCUMENT NUMBER: 139:283130

TITLE: Phosphorescent dendrimers for use in light-emitting devices

INVENTOR(S): Lo, Shih-chun; Burn, Paul Leslie; Samuel, Ifor David William; Anthopoulos, Thomas Dimitrios

PATENT ASSIGNEE(S): Isis Innovation Limited, UK; The University
 Court of the University of St. Andrews
 SOURCE: PCT Int. Appl., 60 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
WO 2003079736	A1	20030925	WO 2003-GB1132	2003 0318
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1491074	A1	20041229	EP 2003-709993	2003 0318
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			GB 2002-6356	A
				2002 0318
			GB 2002-20091	A
				2002 0829
			GB 2002-20092	A
				2002 0829

WO 2003-GB1132

W

2003
0318

AB A **light emitting** device which comprises at least one layer that contains a phosphorescent organometallic dendrimer with a metal cation and ≥ 2 coordinating groups as part of its core and wherein at least 2 of said coordinating groups each have a dendron attached, at least one of which dendrons comprises at least one N atom which forms part of an aromatic ring system or is directly bonded to at least 2 aromatic groups.

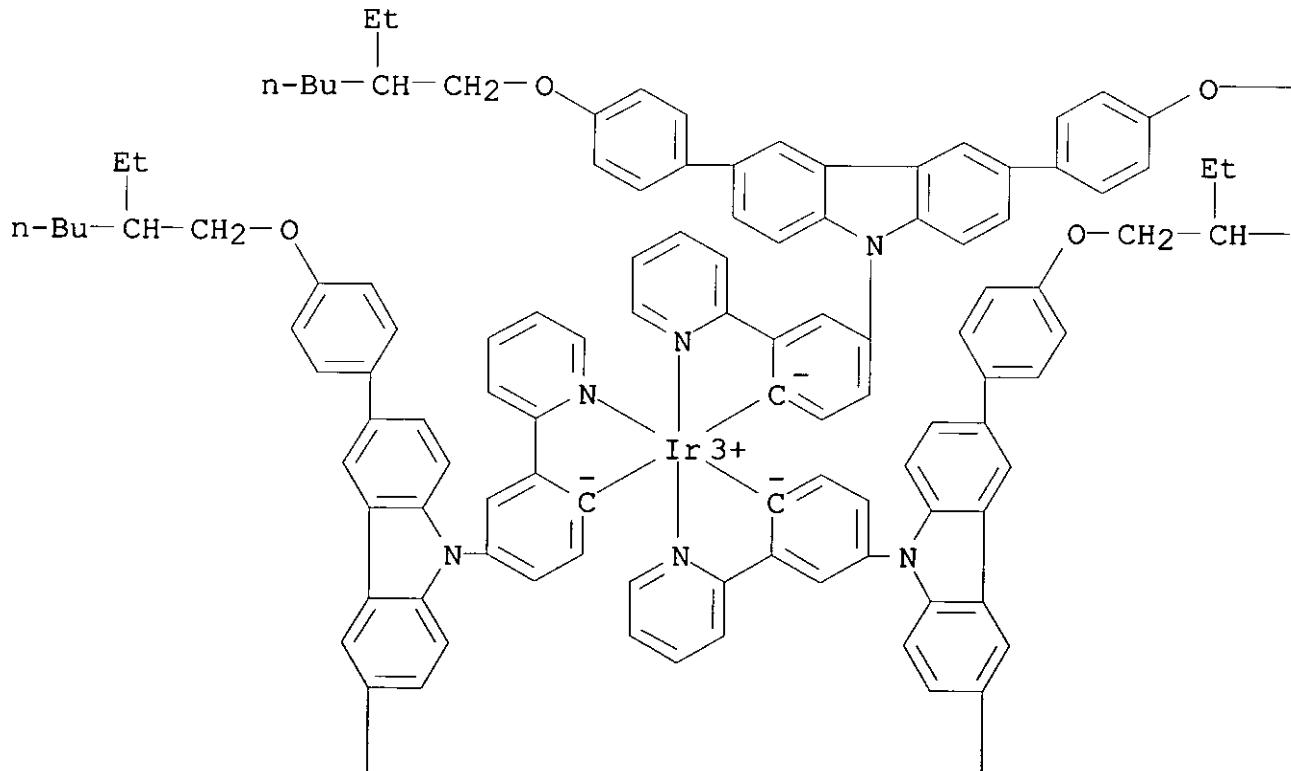
IT **606932-48-3P**

(phosphorescent dendrimers for use in light-emitting devices)

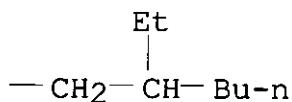
RN 606932-48-3 HCAPLUS

CN Iridium, tris[4-[3,6-bis[4-[(2-ethylhexyl)oxy]phenyl]-9H-carbazol-9-yl]-2-(2-pyridinyl- κ N)phenyl- κ C]-, (OC-6-22)- (9CI)
(CA INDEX NAME)

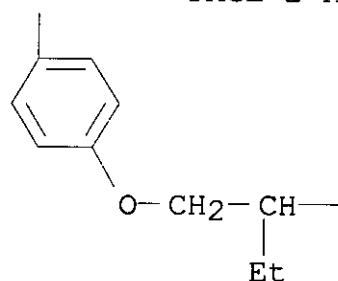
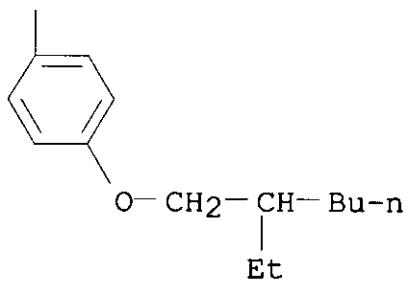
PAGE 1-A



PAGE 1-B



— Bu-n



PAGE 2-A

— Bu-n

IC ICM H05B033-14
 ICS C09K011-06; H01L051-20; C07F015-00; H01L051-30
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
 Other Related Properties)
 Section cross-reference(s): 29
 IT **606932-48-3P** 606932-53-0P 606976-70-9P
 (phosphorescent dendrimers for use in light-emitting devices)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 26 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:737845 HCAPLUS
 DOCUMENT NUMBER: 139:267723
 TITLE: Polymerizable compositions and organic light-emitting devices containing them
 INVENTOR(S): Andrews, Mark David; Look, Kai; Mosley, Alan;
 Steudel, Annette Regine
 PATENT ASSIGNEE(S): CDT Oxford Limited, UK
 SOURCE: PCT Int. Appl., 42 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
WO 2003076548	A1	20030918	WO 2003-GB899	2003 0303
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1483354	A1	20041208	EP 2003-743927	2003 0303
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			GB 2002-5592	A 2002

0309

GB 2002-13902

A

2002
0618

WO 2003-GB899

W

2003
0303

AB Compns. of a mixture of a thiol material and a material that contains a reactive unsatd. C-C bond that can be polymerized to form a charge-transporting or luminescent film are described, as is an organic **light-emitting** diode (**OLED**) device comprising at least one such charge-transporting or emissive layer that was formed by polymerizing a thiol material and an ene material. The process for forming such an **OLED**, including the deposition of a layer of material comprising the polymerizable composition, from solution, exposing said layer to actinic radiation through a mask, and then optionally developing said film to form a photopatterned film, is also disclosed.

IT **602299-91-2P 602299-93-4P**

(polymerizable compns. for organic light-emitting devices)

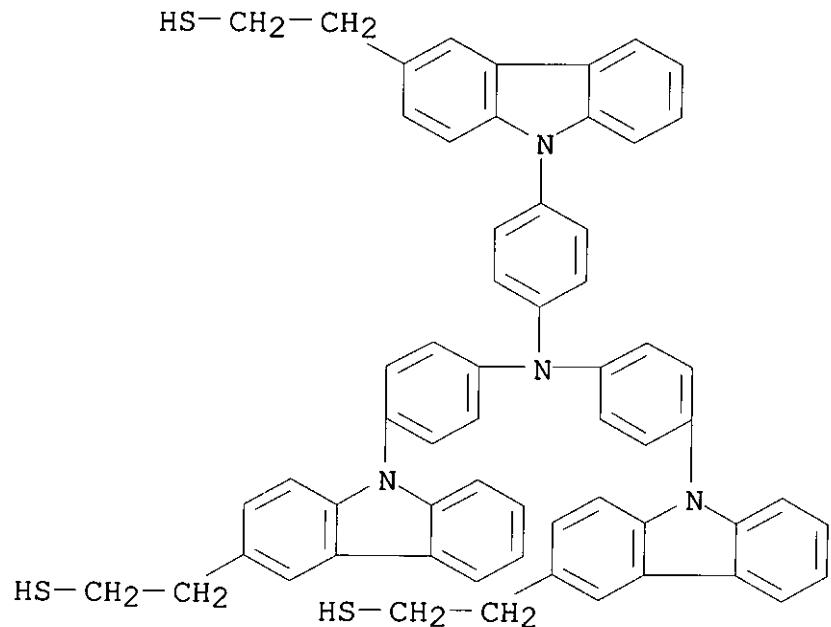
RN 602299-91-2 HCAPLUS

CN 9H-Carbazole-3-ethanethiol, 9,9',9'''-(nitrilotri-4,1-phenylene)tris-, polymer with 4-(3-ethenyl-9H-carbazol-9-yl)-N,N-bis[4-(3-ethenyl-9H-carbazol-9-yl)phenyl]benzenamine (9CI) (CA INDEX NAME)

CM 1

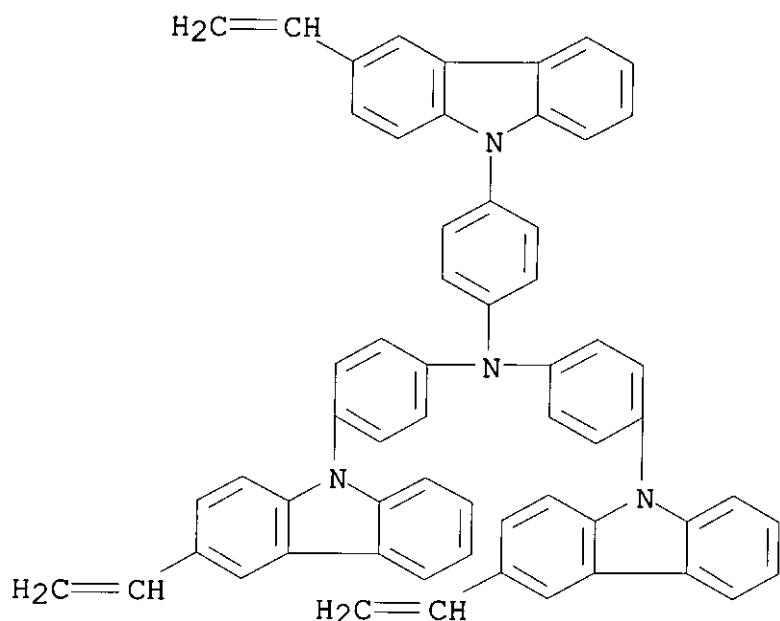
CRN 602299-90-1

CMF C60 H48 N4 S3



CM 2

CRN 602299-88-7
CMF C60 H42 N4



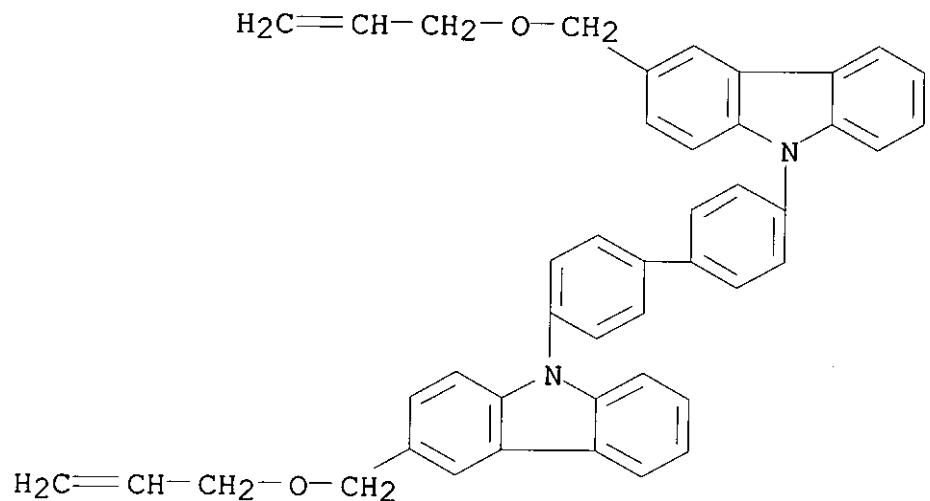
RN 602299-93-4 HCAPLUS

CN 9H-Carbazole-3-ethanethiol, 9,9',9'''-(nitrilotri-4,1-phenylene)tris-, polymer with 9,9'-[1,1'-biphenyl]-4,4'-diylbis[3-[(2-propenyloxy)methyl]-9H-carbazole] (9CI) (CA INDEX NAME)

CM 1

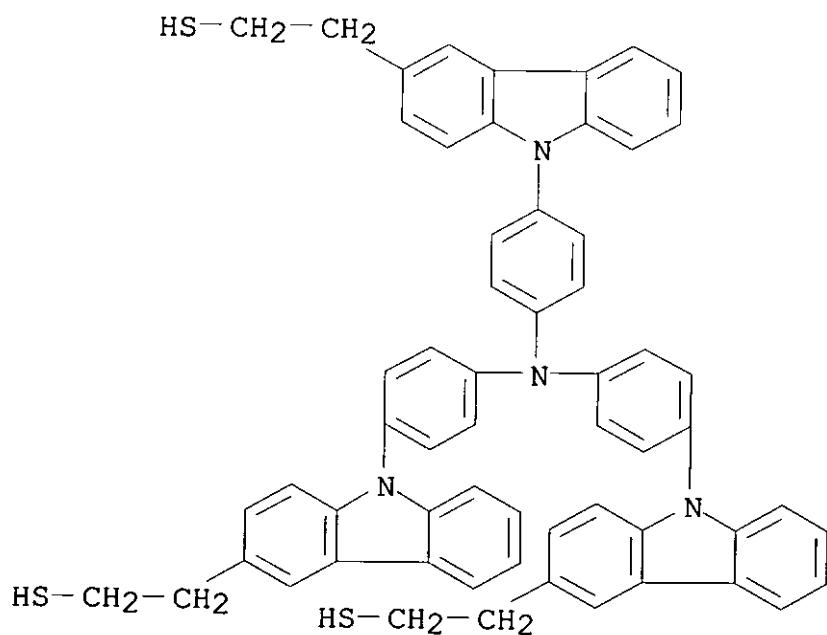
CRN 602299-92-3

CMF C44 H36 N2 O2



CM 2

CRN 602299-90-1

CMF C₆₀ H₄₈ N₄ S₃

IC ICM C09K011-06
 ICS C08G075-04; H05B033-12; H05B033-14; H05B033-22; H05B033-26
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
 Other Related Properties)
 IT **602299-91-2P 602299-93-4P** 602299-94-5P
 (polymerizable compns. for organic light-emitting devices)
 REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L14 ANSWER 27 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:551817 HCAPLUS
 DOCUMENT NUMBER: 139:124827
 TITLE: Bis- and tris-(di)benzocarbazole-based
 materials as hole transport materials for
 organic light emitting devices
 INVENTOR(S): Chen, Jian Ping
 PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan
 SOURCE: PCT Int. Appl., 37 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

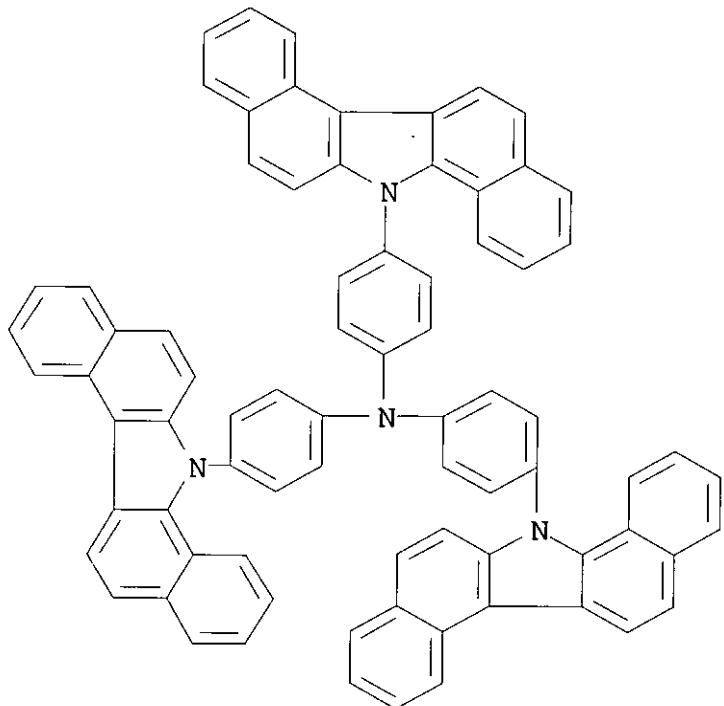
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
WO 2003059014	A1	20030717	WO 2002-US41219	2002 1224
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003186077	A1	20031002	US 2001-29936	2001

PRIORITY APPLN. INFO.: US 2001-29936 A 1231
2001
1231

OTHER SOURCE(S): MARPAT 139:124827
GI

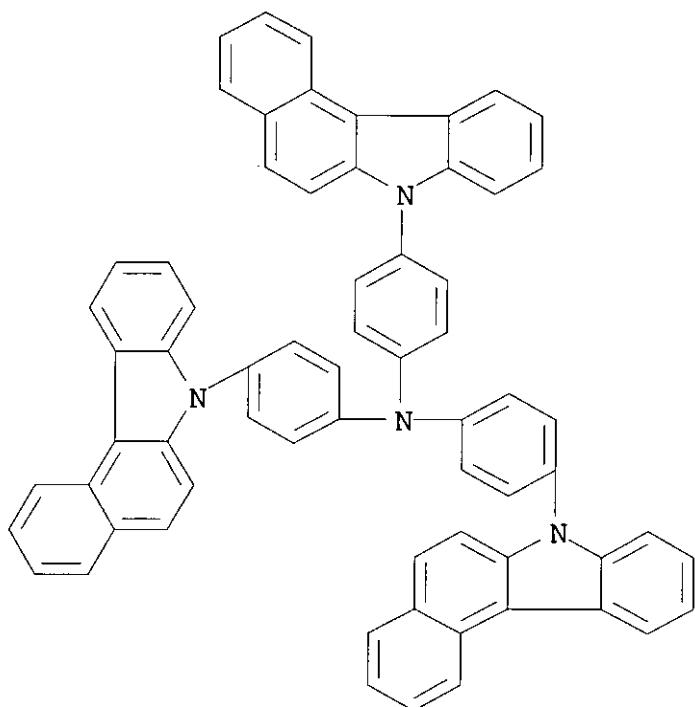
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
*

AB Compds. according to formula I or formula II are described where one or two of Ar1-4 are present, R is selected from the group consisting of H, CH₃, OCH₃ or halogen, and Ar is an aryl bridge. Methods for synthesis of the compds. with formula I and formula II are also discussed as are **electroluminescent** devices employing the compds. as emitting or hole-transporting layers.
IT **513416-66-5P 562841-45-6P 562841-47-8P**
(bis- and tris-(di)benzocarbazole-based materials as hole transport materials for organic light emitting devices)
RN 513416-66-5 HCPLUS
CN Benzenamine, 4-(7H-dibenzo[a,g]carbazol-7-yl)-N,N-bis[4-(7H-dibenzo[a,g]carbazol-7-yl)phenyl]- (9CI) (CA INDEX NAME)



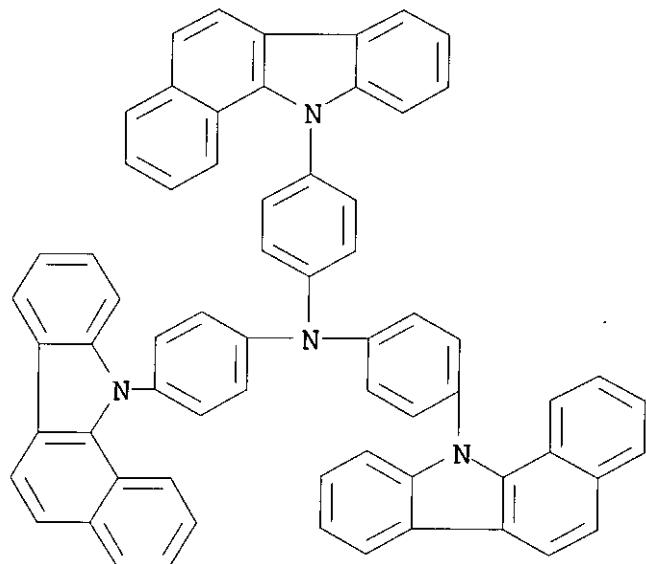
RN 562841-45-6 HCAPLUS

CN Benzenamine, 4-(7H-benzo[c]carbazol-7-yl)-N,N-bis[4-(7H-benzo[c]carbazol-7-yl)phenyl]- (9CI) (CA INDEX NAME)



RN 562841-47-8 HCAPLUS

CN Benzenamine, 4-(11H-benzo[a]carbazol-11-yl)-N,N-bis[4-(11H-benzo[a]carbazol-11-yl)phenyl]- (9CI) (CA INDEX NAME)



IC ICM H05B033-12

ICS H05B033-14; C07D209-82; C07D409-14

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 27, 76

IT 227008-35-7P **513416-66-5P** 562841-31-0P 562841-32-1P
562841-33-2P 562841-34-3P 562841-35-4P 562841-36-5P
562841-37-6P 562841-38-7P 562841-41-2P 562841-42-3P
562841-43-4P **562841-45-6P** **562841-47-8P**

(bis- and tris-(di)benzocarbazole-based materials as hole transport materials for organic light emitting devices)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 28 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:525397 HCAPLUS

DOCUMENT NUMBER: 139:92525

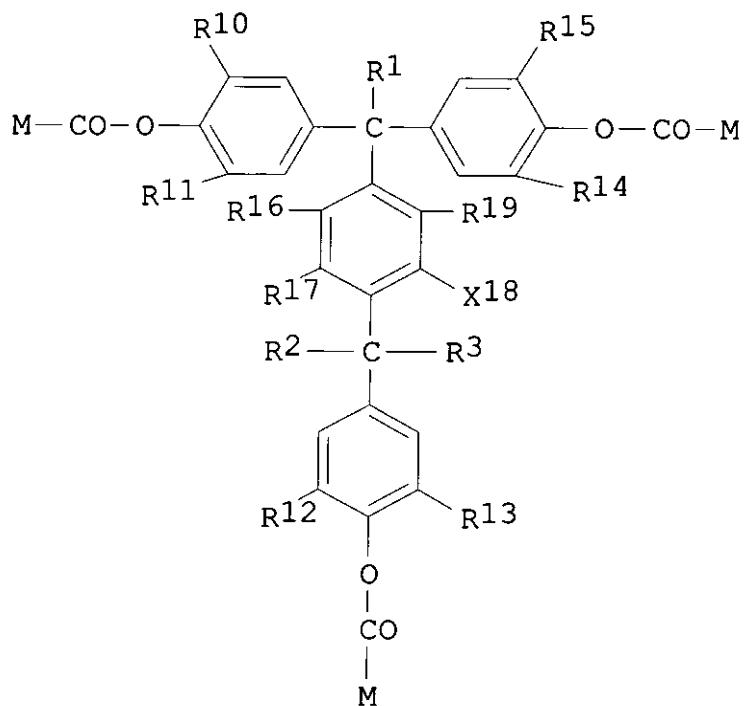
TITLE: α,α,α' -Tris(4-
carbonyloxyaryl)-1-alkyl-4-isoalkylbenzene
derivatives, their synthesis, hole
transporting materials therefrom, and organic
electroluminescent devices including the same
Ueda, Mitsuru; Fukuoka, Naohiko; Tagami,
Sanae; Fujiwara, Toru

INVENTOR(S):

PATENT ASSIGNEE(S): Chemipro Kasei Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003192652	A2	20030709	JP 2002-31527	2002 0207
PRIORITY APPLN. INFO.:			JP 2001-235206	A 2001 0802
			JP 2001-317105	A 2001 1015

OTHER SOURCE(S): MARPAT 139:92525
GI



AB The derivs. are I [R1-R3 = H, alkyl, aralkyl, aryl; R10-R19 = H, alkyl, (p- or m-alkyl)phenyl; M = (C₆H₄-mR₄m)_nQ [m = 1-4; n = 1, 2; R₄ = H, alkyl(oxy), (alkyl)phenyl; Q = [alkyl(oxy)-substituted] diphenylamino, phenylnaphthylamino, dinaphthylamino, N-carbazolyl, etc.]], and are synthesized by reaction of corresponding α,α,α' -tris(4-hydroxyaryl)-1-alkyl-4-isoalkylbenzene derivs. and MCO₂H or MCOX (M = the same as above; X = halo). The derivs. are soluble in casting solvents, thereby making formation of hole-transporting layers of organic LED easier.

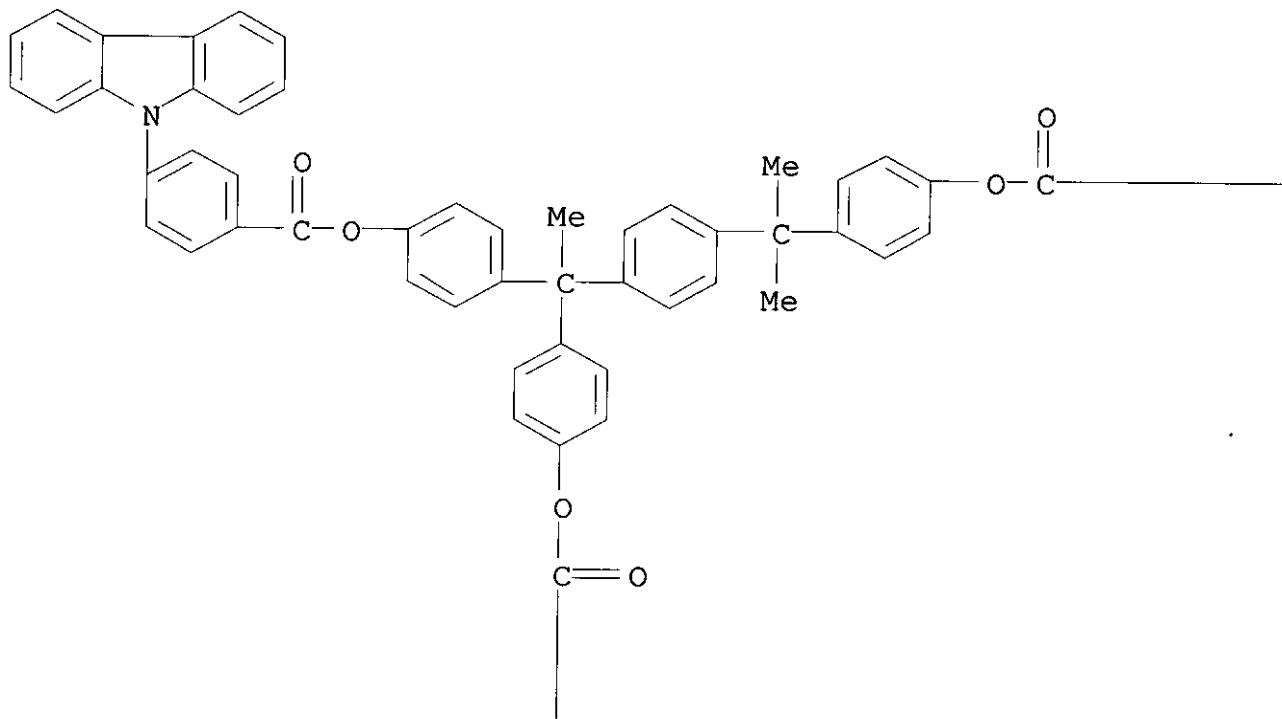
IT **554458-95-6P**

(α,α,α' -tris(4-carbonyloxyaryl)-1-alkyl-4-isoalkylbenzenes forming stable dopes for hole-transporting layers of organic LED)

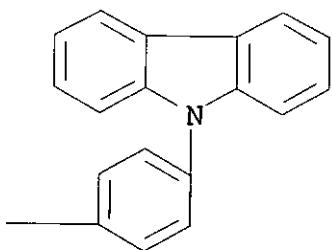
RN 554458-95-6 HCPLUS

CN Benzoic acid, 4-(9H-carbazol-9-yl)-, [1-[4-[1-[4-[4-(9H-carbazol-9-yl)benzoyl]oxy]phenyl]-1-methylethyl]phenyl]ethyldene]di-4,1-phenylene ester (9CI) (CA INDEX NAME)

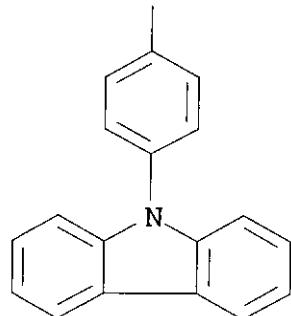
PAGE 1-A



PAGE 1-B



PAGE 2-A



IC ICM C07C229-60
 ICS C07C229-52; C07D209-82; C09K011-06; H05B033-14; H05B033-22
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
 Other Related Properties)
 Section cross-reference(s): 25
 IT Luminescent substances
 (electroluminescent; α,α,α' -tris(4-
 carbonyloxyaryl)-1-alkyl-4-isoalkylbenzenes forming stable
 dopes for hole-transporting layers of organic **LED**)
 IT Electroluminescent devices
 (α,α,α' -tris(4-carbonyloxyaryl)-1-alkyl-4-
 isoalkylbenzenes forming stable dopes for hole-transporting
 layers of organic **LED**)
 IT 554458-91-2P 554458-92-3P 554458-93-4P 554458-94-5P
554458-95-6P
 (α,α,α' -tris(4-carbonyloxyaryl)-1-alkyl-4-
 isoalkylbenzenes forming stable dopes for hole-transporting
 layers of organic **LED**)
 IT 6156-37-2, 4-Diphenylaminobenzoic acid 71935-21-2 110726-28-8
 500303-87-7 554458-96-7 554458-97-8
 (α,α,α' -tris(4-carbonyloxyaryl)-1-alkyl-4-
 isoalkylbenzenes forming stable dopes for hole-transporting
 layers of organic **LED**)

L14 ANSWER 29 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:472573 HCPLUS
 DOCUMENT NUMBER: 139:60162
 TITLE: Organic electroluminescent material using
 calixarene or calixresorciarene derivative
 INVENTOR(S): Momoda, Junji; Kawabata, Yuichiro; Otani,
 Toshiaki

PATENT ASSIGNEE(S): Tokuyama Corporation, Japan
 SOURCE: PCT Int. Appl., 140 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
WO 2003050201	A1	20030619	WO 2002-JP12821	2002 1206
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
PRIORITY APPLN. INFO.:			JP 2001-378448	A 2001 1212
			JP 2002-120827	A 2002 0423
			JP 2002-208112	A 2002 0717

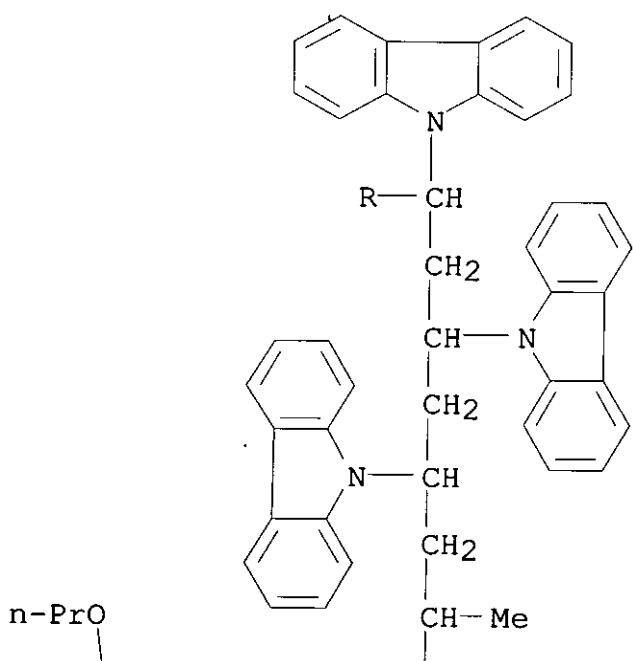
OTHER SOURCE(S): MARPAT 139:60162
 AB The invention refers to an organic **electroluminescent**
 materials suitable for spin coating, comprising. a calixarene or
 calixresorciarene derivative with an **organic**
luminescent group and/or an organic charge transport group,
 such as 4-[1-(2,2-diphenylvinyl)- biphenyl-2-phenylvinyl]phenyl.
 IT 546631-28-1P 546631-81-6P 546633-06-1P

(organic electroluminescent material using calixarene or calixresorciarene derivative)

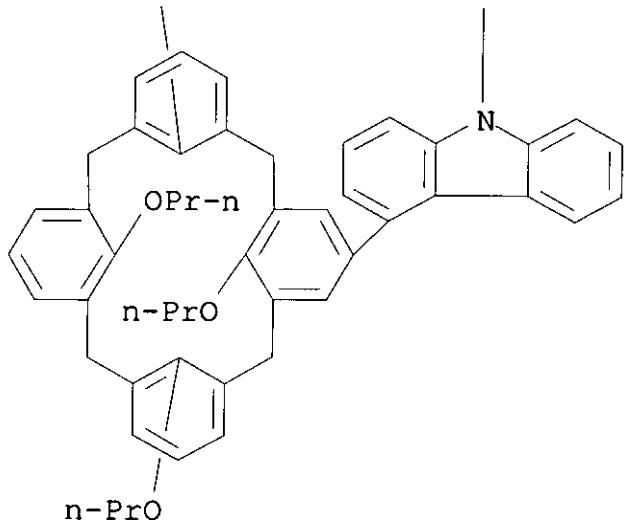
RN 546631-28-1 HCPLUS

CN 9H-Carbazole, 9-[3,5,7,9,11-pentakis(9H-carbazol-9-yl)-1-methylundecyl]-4-(25,26,27,28-tetrapropoxypentacyclo[19.3.1.13,7.1.9,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaen-5-yl)-(9CI) (CA INDEX NAME)

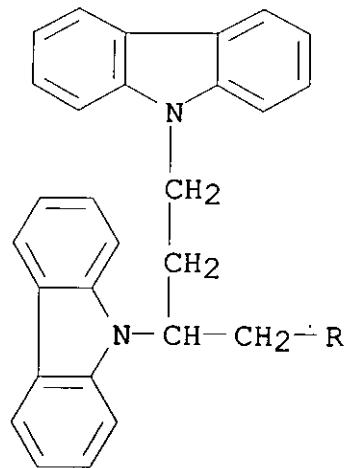
PAGE 1-A



PAGE 2-A



PAGE 3-A

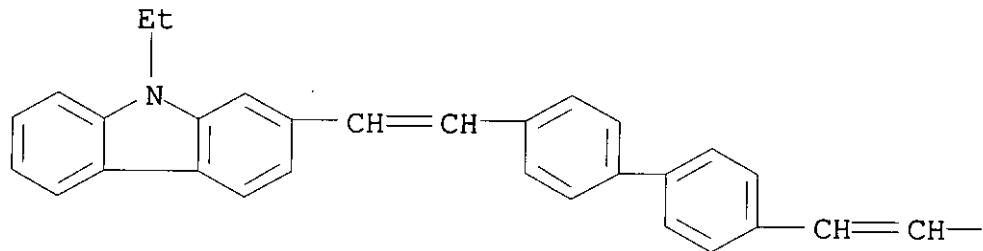


RN 546631-81-6 HCAPLUS

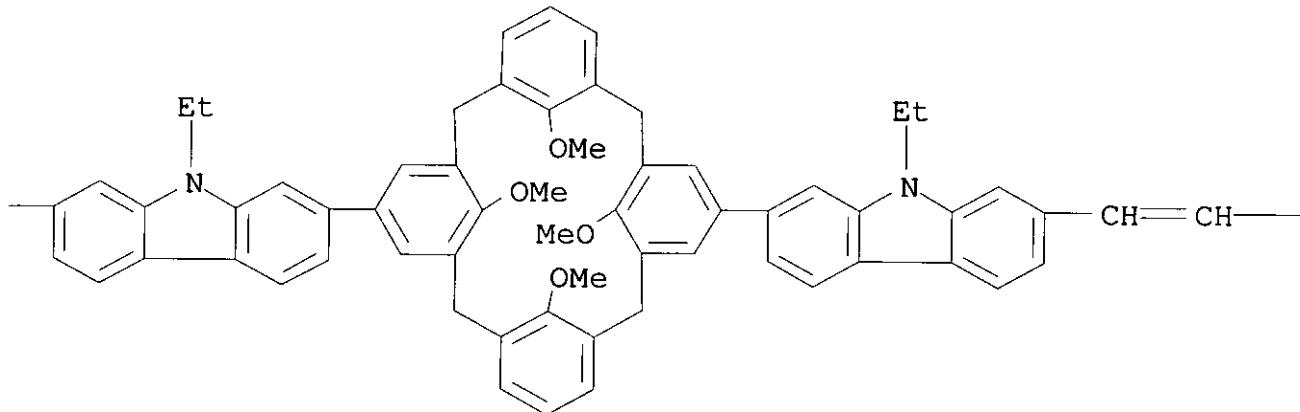
CN 9H-Carbazole, 2,2'-(25,26,27,28-tetramethoxypentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5,17-diyl)bis[9-ethyl-7-[2-[4'-[2-(9-ethyl-9H-

carbazol-2-yl)ethenyl][1,1'-biphenyl]-4-yl]ethenyl]- (9CI) (CA
INDEX NAME)

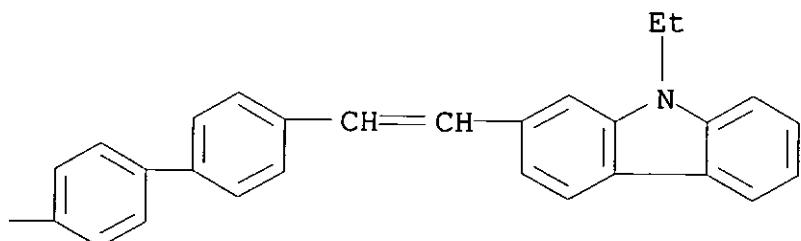
PAGE 1-A



PAGE 1-B

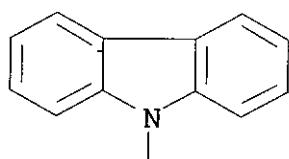
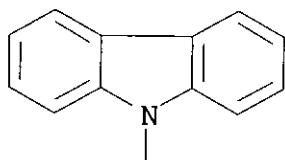


PAGE 1-C

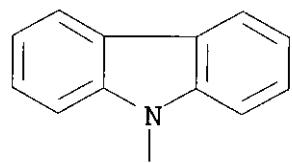


RN 546633-06-1 HCAPLUS
CN 9H-Carbazole, 9,9',9'',9''',9'''',9''''-
(73,74,75,76,77,78,79,80,81,82,83,84-dodecapropoxytridecacyclo[67.
3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43.145,49.151,55.15
7,61.163,67]tetraoctaconta-1(73),3,5,7(84),9,11,13(83),15,17,19(82
,21,23,25(81),27,29,31(80),33,35,37(79),39,41,43(78),45,47,49(77)
,51,53,55(76),57,59,61(75),63,65,67(74),69,71-hexatriacontaene-
5,17,29,41,53,65-hexayl)hexakis- (9CI) (CA INDEX NAME)

PAGE 1-A

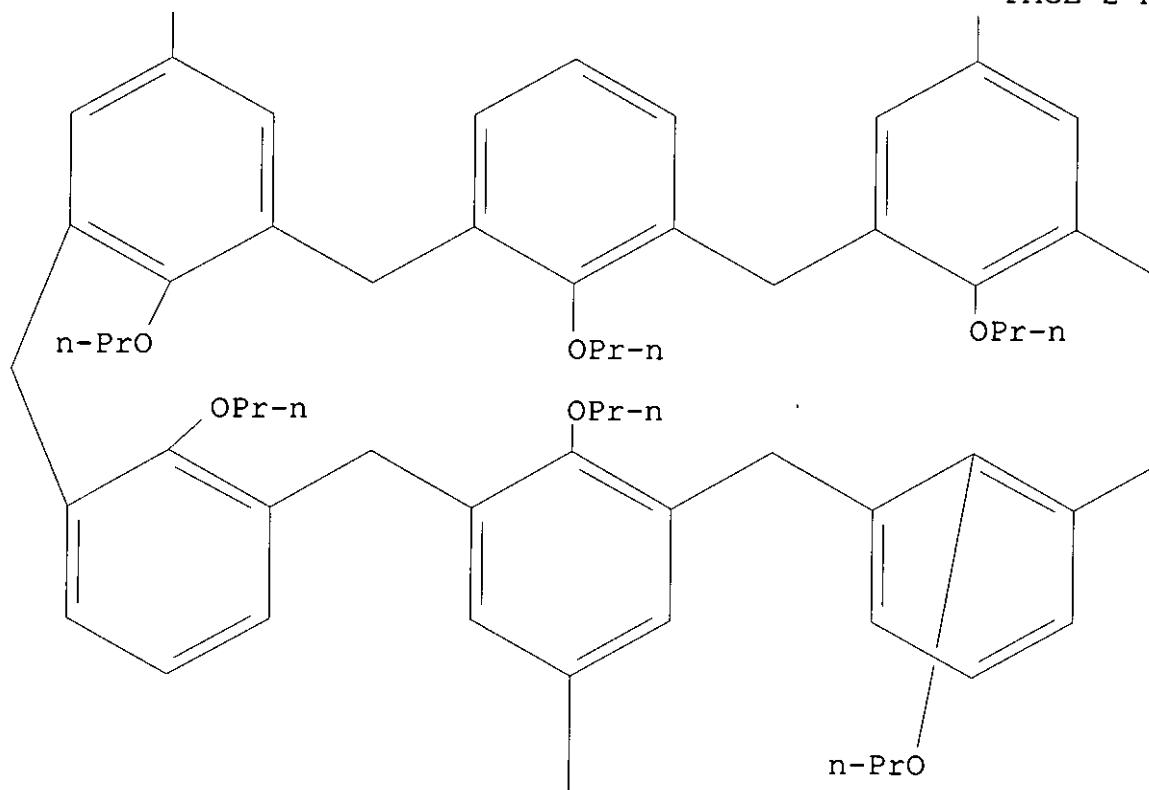


PAGE 1-B

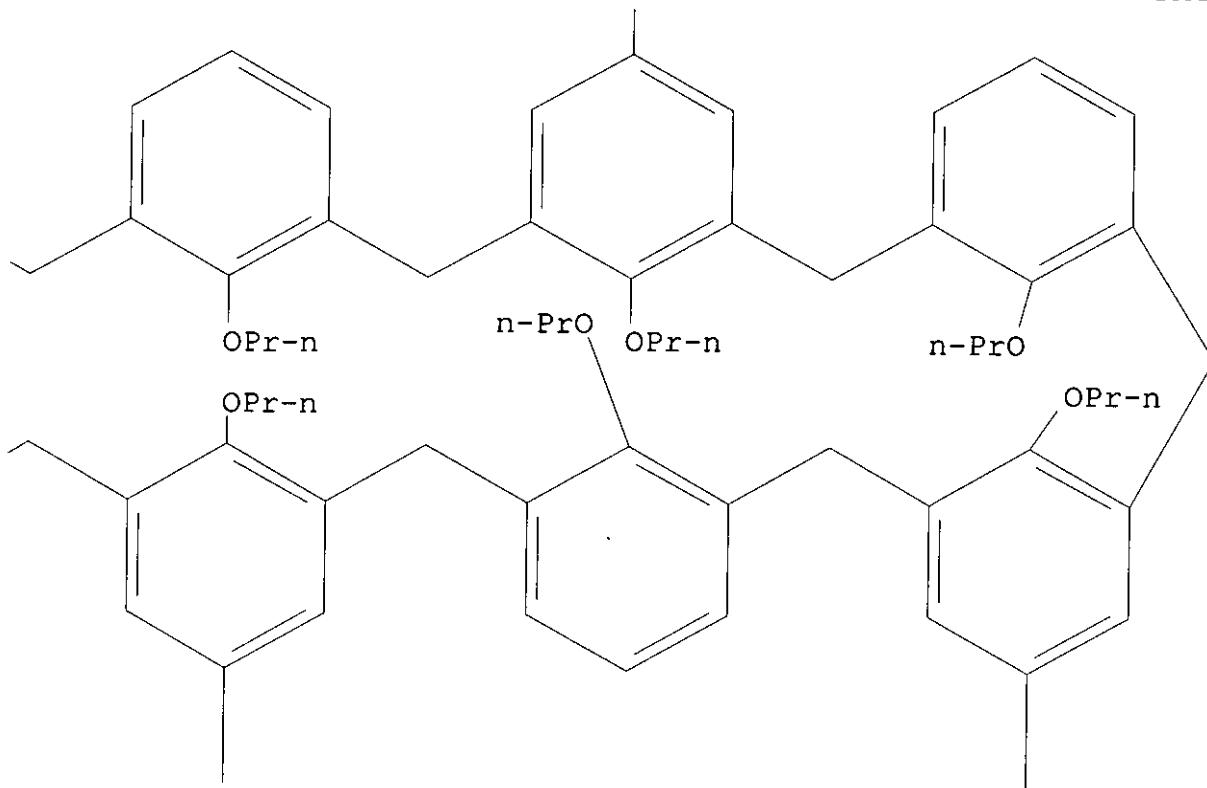


USHA SHRESTHA REM 4B28

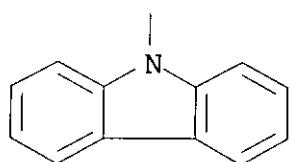
PAGE 2-A

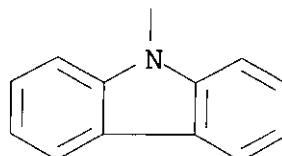
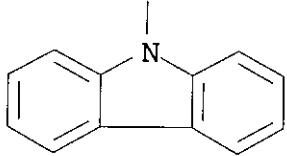


PAGE 2-B



PAGE 3-A

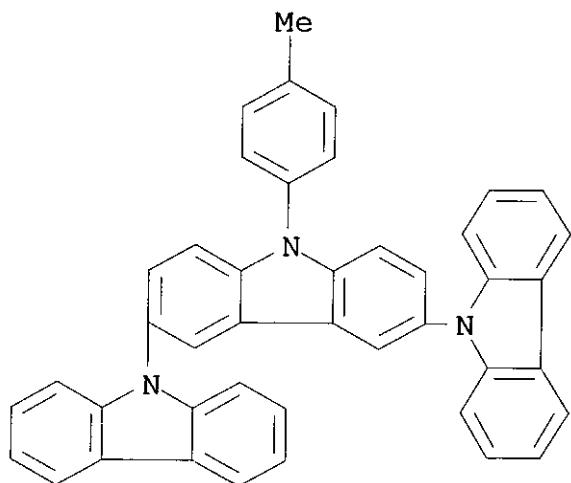




PAGE 3-B

IC ICM C09K011-06
 ICS H05B033-14; H05B033-22; C07C043-215; C07C043-21; C07C043-285;
 C07C211-54; C07C211-61; C07C217-80; C07F007-08; C07F007-10;
 C07D209-86; C07D471-04; C07D471-06; C07D271-10; C07D251-24;
 C07D413-14; C07D235-18; C07D213-16; C07D215-30
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
 Other Related Properties)
 IT 546630-96-0P 546631-02-1P 546631-10-1P 546631-20-3P
546631-28-1P 546631-34-9P 546631-43-0P 546631-51-0P
 546631-61-2P 546631-67-8P 546631-73-6P 546631-76-9P
546631-81-6P 546631-90-7P 546631-96-3P 546632-02-4P
 546632-08-0P 546632-16-0P 546632-26-2P 546632-35-3P
 546632-42-2P 546632-48-8P 546632-54-6P 546632-56-8P
 546632-62-6P 546632-74-0P 546632-79-5P 546632-87-5P
 546632-93-3P **546633-06-1P** 546633-19-6P 546633-27-6P
 546633-43-6P 546633-48-1P 546633-59-4P 546633-66-3P
 546633-70-9P 546633-78-7P 547735-93-3P 547735-95-5P
 547756-86-5P 547756-88-7P 547756-90-1P 547756-92-3P
 547756-97-8P 547756-99-0P 547757-01-7P 547757-04-0P
 547757-05-1P 547757-07-3P 547757-08-4P 547757-21-1P
 547757-32-4P 547757-36-8P 547757-37-9P 547757-39-1P
 547757-42-6P 547757-43-7P 547757-44-8P 547757-46-0P
 547757-47-1P 547757-48-2P 547757-49-3P 547757-50-6P
 547757-51-7P 547757-52-8P 547757-53-9P 547757-54-0P
 547757-55-1P 547757-59-5P 547757-63-1P 547757-64-2P
 547757-65-3P 547757-66-4P 547757-98-2P 547758-22-5P
 547758-61-2P 547759-00-2P 547759-52-4P 547759-75-1P
 547760-07-6P 547760-38-3P 547761-00-2P 547761-27-3P
 547761-55-7P 547761-91-1P 547762-32-3P 547762-84-5P
 547763-30-4P 547763-53-1P 547763-57-5P 547763-69-9P
 547763-70-2P 547763-71-3P
 (organic electroluminescent material using calixarene or
 calixresorciarene derivative)
 REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L14 ANSWER 30 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:417076 HCAPLUS
DOCUMENT NUMBER: 139:140641
TITLE: Carbazole-based hole-transporting materials
for electroluminescent devices
AUTHOR(S): Zhang, Q.; Hu, Y. F.; Cheng, Y. X.; Su, G. P.;
Ma, D. G.; Wang, L. X.; Jing, X. B.; Wang, F.
S.
CORPORATE SOURCE: State Key Laboratory of Polymer Physics and
Chemistry, Changchun Institute of Applied
Chemistry, Chinese Academy of Sciences,
Changchun, 130022, Peop. Rep. China
SOURCE: Synthetic Metals (2003), 137(1-3), 1111-1112
CODEN: SYMEDZ; ISSN: 0379-6779
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Two kinds of carbazole-based mols. connected with diphenylamine
and carbazole are synthesized by modified Ullmann reaction.
Comparative study on their thermal stability, redox behavior, hole
injection and transport properties are present. The
carbazole-based mols. are very promising hole-transporting
materials for **electroluminescent** devices.
IT 566143-94-0P
(DCPC; carbazole-based hole-transporting materials for
electroluminescent devices)
RN 566143-94-0 HCAPLUS
CN 9,3':6',9'''-Ter-9H-carbazole, 9'-(4-methylphenyl)- (9CI) (CA
INDEX NAME)



CC 73-11 (**Optical, Electron, and Mass Spectroscopy and Other Related Properties**)

Section cross-reference(s): 22, 27, 72, 77

IT Electric current-potential relationship
(of **LEDs** with carbazole-based hole-transporting materials)

IT Electric potential
(turn-on; of **LEDs** with carbazole-based hole-transporting materials)

IT **566143-94-0P**
(DCPC; carbazole-based hole-transporting materials for electroluminescent devices)

IT 2085-33-8, Alq3
(**LEDs** with carbazole-based hole-transporting materials and)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 31 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:221276 HCAPLUS

DOCUMENT NUMBER: 139:36191

TITLE: Design, synthesis, and characterization of well-defined amorphous molecules for use in organic LEDs

AUTHOR(S): Robinson, Matthew R.; Bazan, Guillermo C.; Heeger, Allan J.; O'Regan, Marie B.; Wang, Shujun

CORPORATE SOURCE: Department of Materials Engineering,
University of California, Santa Barbara, CA,
93106, USA

SOURCE: ACS Symposium Series (2003), 844(Molecules as
Components of Electronic Devises), 187-194
CODEN: ACSMC8; ISSN: 0097-6156

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

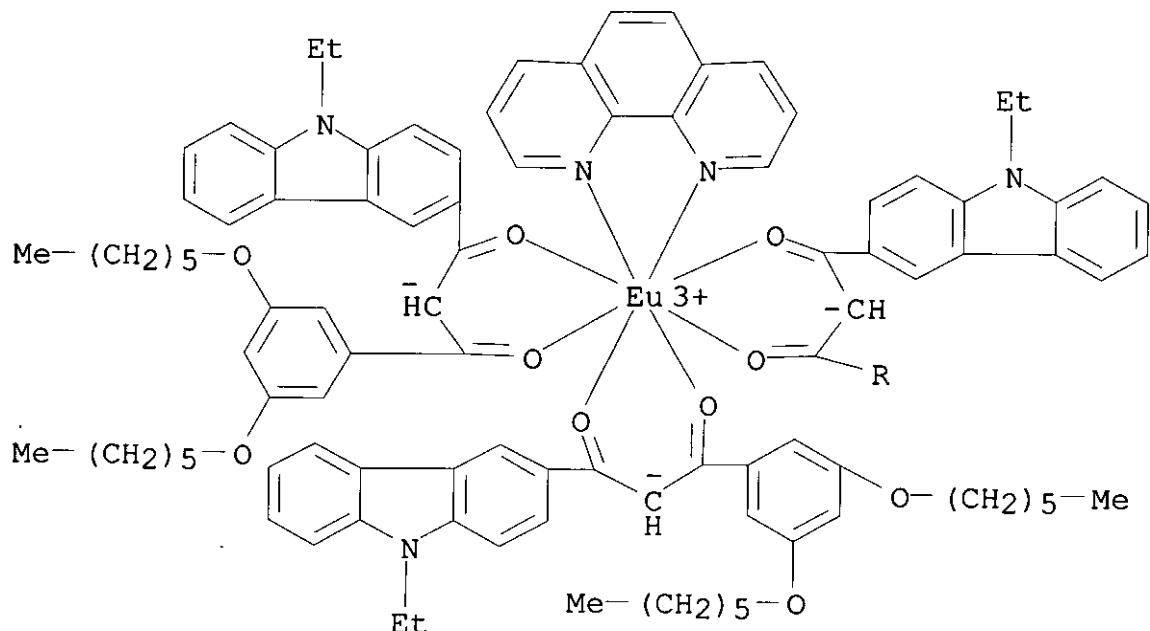
AB Symposium proceedings. Two strategies are presented for making amorphous organic chromophores with well-defined dimensions that exploit the superior qualities of polymers and small mols. with respect to LED fabrication. These qualities are resistance to crystallization, purity, high luminescence efficiency, and high solubility required for spin casting. Tetrakis(4-(4'-(3'',5''-dihexyloxy)styryl)styryl)stilbenyl)methane (T-4R-OC6H13) exemplifies a strategy consisting of four oligophenylenevinylene fragments ("arms") connected to a tetrahedral point of convergence. Bulk samples are amorphous and the film-forming qualities are useful for the fabrication of LEDs with low turn-on voltages. In a related strategy, tris[1-(N-ethylcarbazol-3-ylcarbonyl)-1-(3,,5-hexyloxybenzoyl)methane]-(phenanthroline)europium was designed using a modular approach. It incorporates functionalities for electron and hole transport, solubility, and resistance to crystallization. LEDs were fabricated and studied.

IT 303090-36-0
(design, synthesis, and characterization of well-defined amorphous mols. for use in organic LEDs)

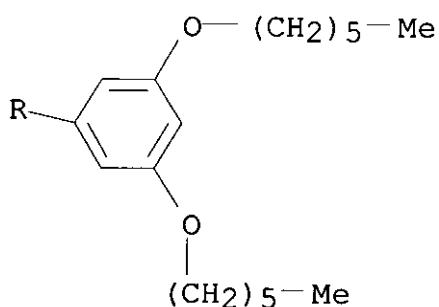
RN 303090-36-0 HCPLUS

CN Europium, tris[1-[3,5-bis(hexyloxy)phenyl]-3-(9-ethyl-9H-carbazol-3-yl)-1,3-propanedionato- κ O, κ O'] (1,10-phenanthroline- κ N1, κ N10)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 22-9 (Physical Organic Chemistry)

Section cross-reference(s): 73

IT 303090-36-0 338460-81-4

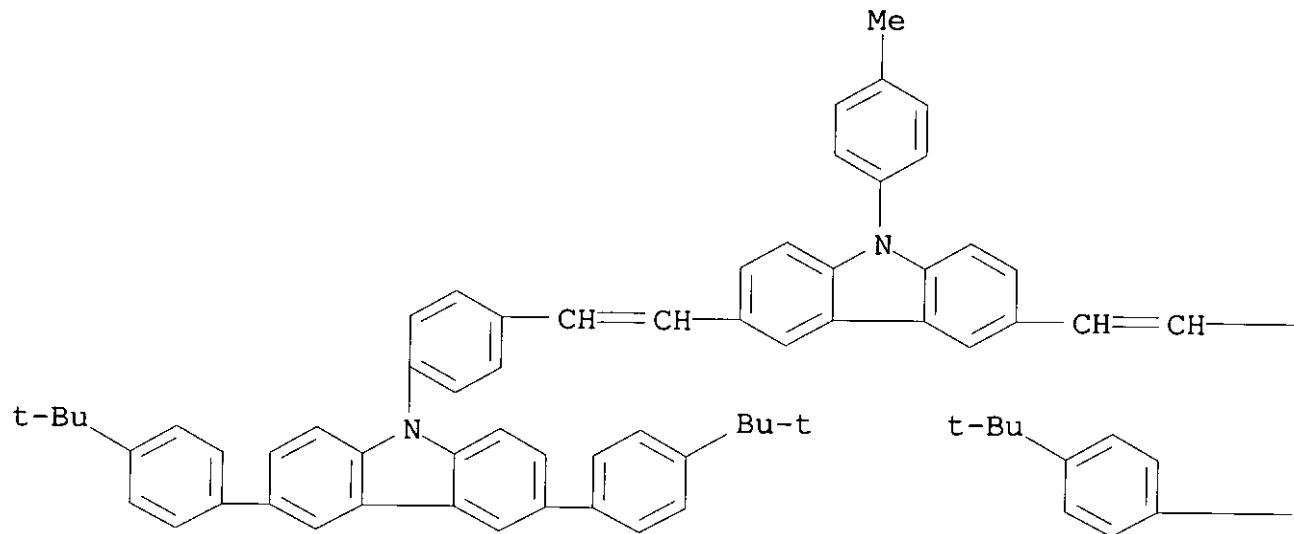
(design, synthesis, and characterization of well-defined amorphous mols. for use in organic LEDs)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE

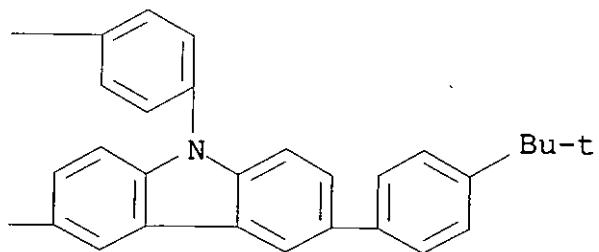
IN THE RE FORMAT

L14 ANSWER 32 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:132150 HCPLUS
 DOCUMENT NUMBER: 139:14094
 TITLE: A field-dependent organic LED consisting of two new high Tg blue light emitting organic layers: a possibility of attainment of a white light source
 AUTHOR(S): Cha, Soon Wook; Jin, Jung-Il
 CORPORATE SOURCE: Department of Chemistry and the Center for Electro- and Photo-Responsive Molecules, Korea University, Seoul, 136-701, S. Korea
 SOURCE: Journal of Materials Chemistry (2003), 13(3), 479-484
 PUBLISHER: Royal Society of Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Two new blue **light emitting** trimeric compds. of the Y-shape type having high glass transition temps. were synthesized and **EL** behavior of LED devices consisting of bilayers of the two compds. was studied. One of the compds. is of hole-transporting type containing carbazole moieties, whereas the other is of electron-transporting type bearing phenyloxadiazole moieties. The bilayer LED devices exhibit a strong field-dependence and **emit white light** (simultaneous **light-emittance** in blue, green and red regions), at high applied elec. fields. Increased interfacial formation of exciplexes at stronger external fields appears to be responsible for this field-dependence.
 IT 535995-35-8P (film and in solution; field-dependent organic **LED** consisting of two new high Tg blue-light-emitting organic layers as possibility of attainment of white light source)
 RN 535995-35-8 HCPLUS
 CN 9H-Carbazole, 3,6-bis[2-[4-[3,6-bis[4-(1,1-dimethylethyl)phenyl]-9H-carbazol-9-yl]phenyl]ethenyl]-9-(4-methylphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 22, 76

IT Luminescence, electroluminescence
 (blue; field-dependent organic **LED** consisting of two new high Tg blue-light-emitting organic layers as possibility of attainment of white light source)

IT Luminescent substances
 (electroluminescent, blue-emitting; field-dependent organic **LED** consisting of two new high Tg blue-light-emitting organic layers as possibility of attainment of white light source)

IT Glass transition temperature
 Luminescence
 UV and visible spectra
 (field-dependent organic **LED** consisting of two new high Tg blue-light-emitting organic layers as possibility of attainment of white light source)

IT Exciplex
 (interfacial formation of; field-dependent organic **LED** consisting of two new high Tg blue-light-emitting organic layers as possibility of attainment of white light source)

IT Electroluminescent devices
 Light sources
 (white-emitting; field-dependent organic **LED** consisting of two new high Tg blue-light-emitting organic layers as possibility of attainment of white light source)

IT 12798-95-7 50926-11-9, Indium tin oxide
 (electrode; field-dependent organic **LED** consisting of two new high Tg blue-light-emitting organic layers as possibility of attainment of white light source)

IT 86-74-8, Carbazole 99-75-2 106-38-7, 4-Bromotoluene
 302-01-2, Hydrazine, reactions 1710-98-1, 4-tert-Butylbenzoyl chloride 23950-59-6, 3,5-Dibromobenzoyl chloride 123324-71-0,
 4-tert-Butylphenylboronic acid
 (field-dependent organic **LED** consisting of two new high Tg blue light emitting organic layers prepared using)

IT 19264-73-4P
 (field-dependent organic **LED** consisting of two new high Tg blue light emitting organic layers prepared using)

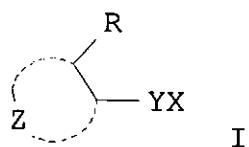
IT **535995-35-8P** 535995-36-9P
 (film and in solution; field-dependent organic **LED** consisting of two new high Tg blue-light-emitting organic layers as possibility of attainment of white light source)

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2002:802413 HCPLUS
 DOCUMENT NUMBER: 137:317662
 TITLE: Hole-transporting cyclic compound and
 electroluminescent device using it
 INVENTOR(S): Taguchi, Toshiki
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002308837	A2	20021023	JP 2001-107306	2001 0405
PRIORITY APPLN. INFO.:			JP 2001-107306	2001 0405

OTHER SOURCE(S): MARPAT 137:317662
 GI

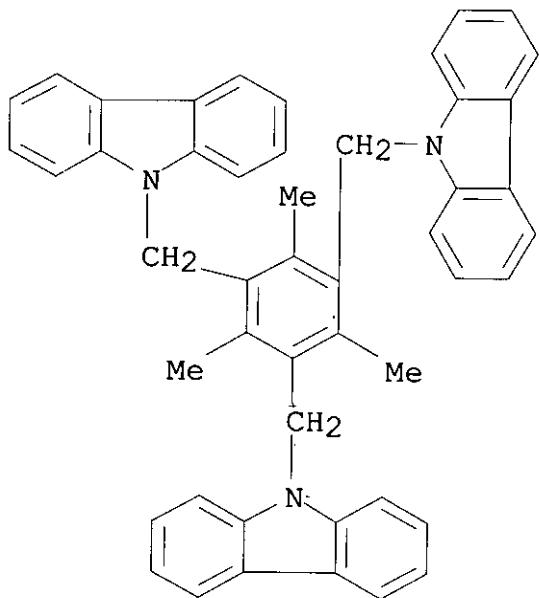


AB The **electroluminescent** device uses ≥ 1 cyclic compound I (X = hole-transporting group; Y= divalent linkage group, none; Z = atomic group to form ≥ 3 -membered ring; R = H, substituent). The device shows high emission and improved durability in repeated use.

IT **471891-77-7P**
 (hole-transporting cyclic compound for electroluminescent device with improved durability)

RN 471891-77-7 HCPLUS

CN 9H-Carbazole, 9,9',9''-[(2,4,6-trimethyl-1,3,5-benzenetriyl)tris(methylene)]tris- (9CI) (CA INDEX NAME)



IC ICM C07C211-54

ICS C07D209-86; C07D223-14; C07D223-26; C07D307-91; C07D333-76;
C07D471-04; C07F007-10; C07F015-00; C09K011-06; H05B033-14;
H05B033-22CC 73-11 (**Optical, Electron, and Mass Spectroscopy and
Other Related Properties**)IT **471891-77-7P**(hole-transporting cyclic compound for electroluminescent device
with improved durability)

L14 ANSWER 34 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:576170 HCPLUS

DOCUMENT NUMBER: 137:254828

TITLE: Green phosphorescent dendrimer for
light-emitting diodesAUTHOR(S): Lo, Shih-Chun; Male, Nigel A. H.; Markham,
Jonathan P. J.; Magennis, Steven W.; Burn,
Paul L.; Salata, Oleg V.; Samuel, Ifor D. W.CORPORATE SOURCE: The Dyson Perrins Laboratory, University of
Oxford, Oxford, OX1 3QY, UKSOURCE: Advanced Materials (Weinheim, Germany) (2002),
14(13-14), 975-979

CODEN: ADVMEW; ISSN: 0935-9648

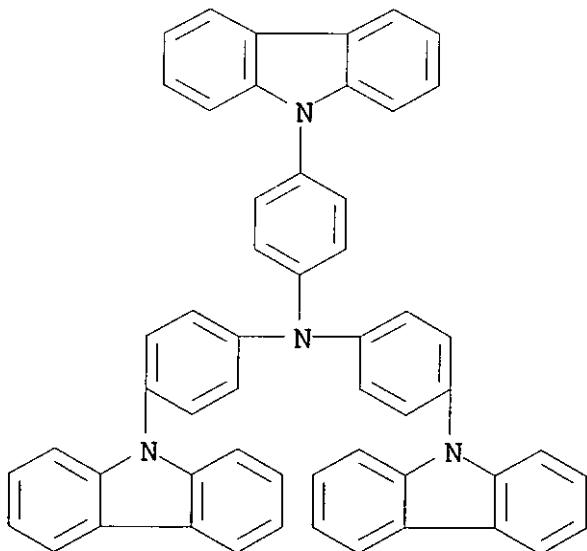
PUBLISHER: Wiley-VCH Verlag GmbH
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB High efficiencies were achieved in 2-layer organic LEDs containing a solution-processed light-emitting dendrimer layer and a hole-blocking/electron-transporting layer. The dendrimer consisted of a fac-tris(2-phenylpyridine)iridium core, phenylene dendrons, and 2-ethylhexyloxy surface groups. All the devices prepared used ITO as the anode and LiF/Al as the cathode. The traditional bipolar 4,4'-bis(N-carbazolyl)biphenyl (CBP) and the newer 4,4',4''-tris(N-carbazolyl)triphenylamine (TCTA) were selected as the host materials for comparison. The triphenylamine center was considered to impart greater hole-transport character for TCTA when compared to CBP. The 1,3,5-tris(2-N-phenylbenzimidazolyl)benzene was more stable than 2,9-dimethyl-4,7-diphenyl-1,10-phenanthroline as the electron-transport/hole-blocking layer.

IT 139092-78-7, 4,4',4'''-Tris(N-carbazolyl)triphenylamine
 (LEDs containing iridium bis(ethylhexyloxyphenylene)phenylpyridine dendrimer green phosphorescent complex and)

RN 139092-78-7 HCPLUS

CN Benzenamine, 4-(9H-carbazol-9-yl)-N,N-bis[4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)



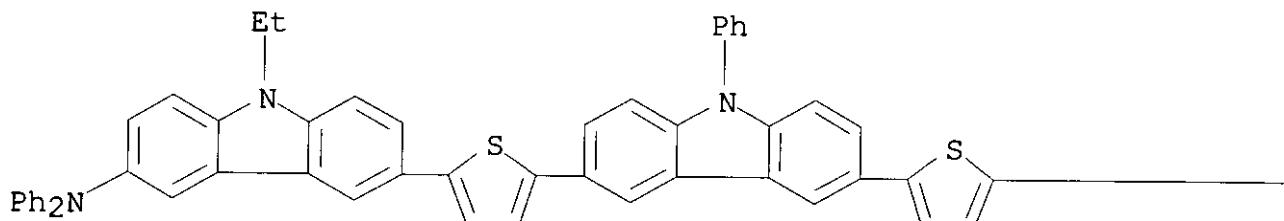
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT Section cross-reference(s): 76
 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline
 58328-31-7, 4,4'-Bis(N-carbazolyl)biphenyl 65181-78-4, TPD
139092-78-7, 4,4',4''-Tris(N-carbazolyl)triphenylamine
 192198-85-9, 1,3,5-Tris(2-N-phenylbenzimidazolyl)benzene
 (LEDs containing iridium bis(ethylhexyloxyphenylene)phenylpyridine dendrimer green phosphorescent complex and)
 REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

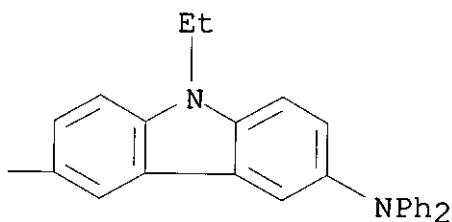
L14 ANSWER 35 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:152154 HCAPLUS
 DOCUMENT NUMBER: 136:316630
 TITLE: New Star-Shaped Luminescent Triarylamines:
 Synthesis, Thermal, Photophysical, and
 Electroluminescent Characteristics
 AUTHOR(S): Thomas, K. R. Justin; Lin, Jiann T.; Tao,
 Yu-Tai; Ko, Chung-Wen
 CORPORATE SOURCE: Institute of Chemistry, Academia Sinica,
 Taipei, 115, Taiwan
 SOURCE: Chemistry of Materials (2002), 14(3),
 1354-1361
 CODEN: CMATEX; ISSN: 0897-4756
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB 3,6-Disubstituted carbazole and 1,3,5-trisubstituted benzene
 derivs. incorporating thienyl aromatic (Ph, fluorenyl, and
 carbazolyl) conjugation and end-capped diphenylamine were
 synthesized by iterative C-N and C-C coupling procedures. The
 carbazole derivs. emit blue light and the
 star-shaped benzene derivs. emit either blue or bluish green color
 depending on the conjugation segment. In general, they possess
 high glass transition temps. (>120°) and decomposition temps.
 (>520°). Double-layer organic light-emitting devices were successfully fabricated using these
 novel mols. as hole-transporting and emitting materials. Devices
 of the configuration ITO/HTM/TPBI/Mg:Ag display blue to green
 emission from the HTM layer while in the devices of the
 configuration ITO/HTM/Alq₃/Mg:Ag, a typical green emission from
 the Alq₃ layer was observed
 IT **410547-41-0P 410547-43-2P 410547-44-3P**
410547-47-6P
 (synthesis, thermal, photophys., and electroluminescent

RN characteristics of new star-shaped luminescent triarylamines)
 RN 410547-41-0 HCPLUS
 CN 9H-Carbazol-3-amine, 6,6'-(9-phenyl-9H-carbazole-3,6-diyl)di-5,2-thiophenediyl]bis[9-ethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

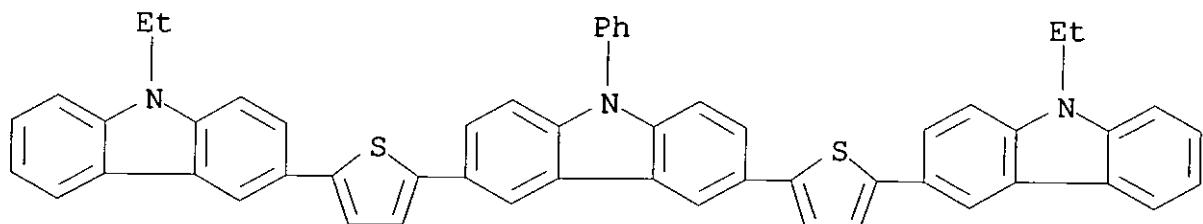
PAGE 1-A



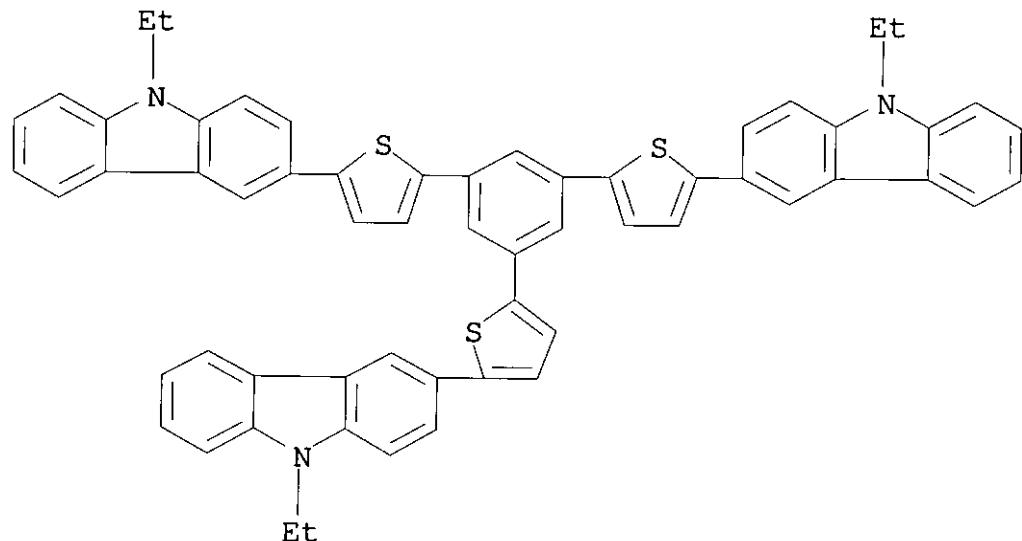
PAGE 1-B



RN 410547-43-2 HCPLUS
 CN 9H-Carbazole, 3,6-bis[5-(9-ethyl-9H-carbazol-3-yl)-2-thienyl]-9-phenyl- (9CI) (CA INDEX NAME)

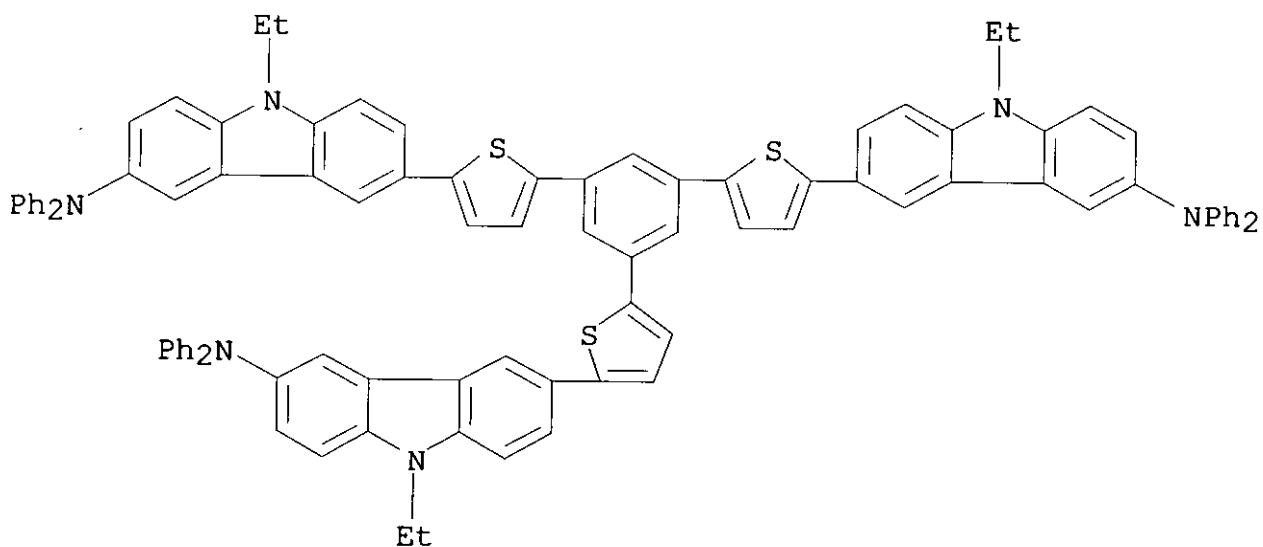


RN 410547-44-3 HCPLUS
 CN 9H-Carbazole, 3,3',3''-(1,3,5-benzenetriyltri-5,2-thiophenediyl)tris[9-ethyl- (9CI) (CA INDEX NAME)



RN 410547-47-6 HCPLUS

CN 9H-Carbazol-3-amine, 6,6',6''-(1,3,5-benzenetriyltri-5,2-thiophenediyl)tris[9-ethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
Other Related Properties)IT 410547-39-6P 410547-40-9P **410547-41-0P** 410547-42-1P

**410547-43-2P 410547-44-3P 410547-45-4P
410547-46-5P 410547-47-6P 410547-48-7P**

(synthesis, thermal, photophys., and electroluminescent characteristics of new star-shaped luminescent triarylaminies)

REFERENCE COUNT: 71 THERE ARE 71 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 36 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2001:587248 HCPLUS
 DOCUMENT NUMBER: 135:172861
 TITLE: Biscarbazolylbiscarbazyl hole-transporting compound, its manufacture, and electroluminescent device using it with high thermal stability
 INVENTOR(S): Lee, Ji Hoon; Ki, In So; Cho, Song Woo; Che, Byong Hoon
 PATENT ASSIGNEE(S): Samsung Sdi Co., Ltd., S. Korea
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001220380	A2	20010814	JP 2000-121836	2000 0421
JP 3335985	B2	20021021		
KR 2001077773	A	20010820	KR 2000-5814	2000 0208
US 2001046612	A1	20011129	US 2001-778859	2001 0208
US 6451461	B2	20020917		
PRIORITY APPLN. INFO.:			KR 2000-5814	A 2000 0208

OTHER SOURCE(S): MARPAT 135:172861
 GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
 *

AB The hole-transporting compound is a 5,5'-bis(9H,9-carbazolyl)-N,N'-disubstituted-3,3'-bicarbazyl derivative I (R = H, C1-12 aliphatic alkyl,

branched alkyl, cyclic alkyl, C4-14 arom group; R may be substituted with 1 or 2 alkoxy or amine). The **electroluminescent** device uses I as a hole-transporting agent and has a laminated structure of A/H/L/C, A/B/H/L/C, A/H/L/E/C, A/H/L/E/HS/C, or A/B/H/L/E/HS/C (A = anode, B = buffer layer, H = hole-transporting layer, L = **light-emitting** layer, E = electron-transporting layer, HS = hole-shielding layer, C = cathode). I is manufactured by (1) mixing CHCl₃ solution of N-substituted carbazole with Fe chloride-dispersed CHCl₃ to prepare N,N'-disubstituted 3,3'-bicarbazyl II, (2) reacting II with halogens or halides to prepare N,N'-disubstituted 5,5'-dihalo-3,3'-bicarbazyl III (X = halo), and (3) reacting III with carbazole in aromatic solvents. The device shows high efficiency and long service life.

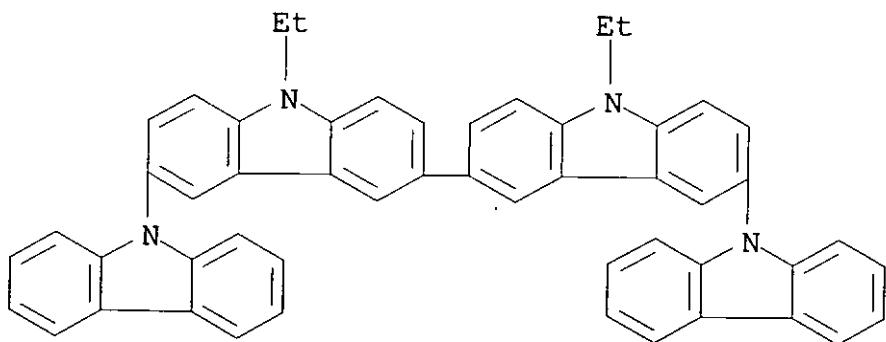
IT 354135-64-1P 354135-69-6P

(manufacture of biscarbazolylbiscarbazyl hole-transporting agent for

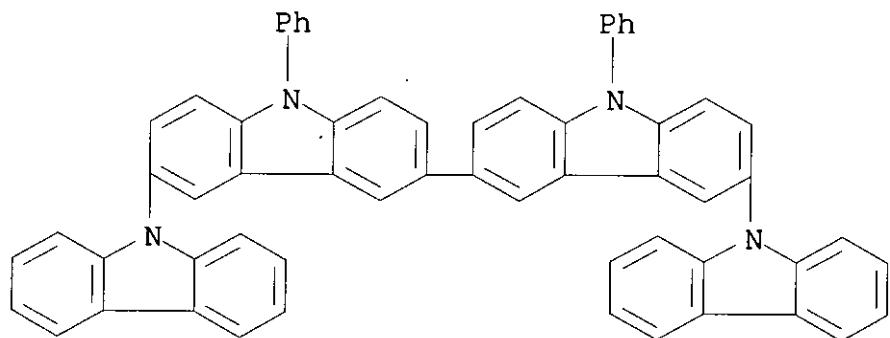
electroluminescent device with high thermal stability)

RN 354135-64-1 HCPLUS

CN 9,3':6',3'':6'',9'''-Quater-9H-carbazole, 9',9'''-diethyl- (9CI)
 (CA INDEX NAME)



RN 354135-69-6 HCPLUS

CN 9,3':6',3'':6'',9'''-Quater-9H-carbazole, 9',9''-diphenyl- (9CI)
(CA INDEX NAME)

IC C07D209-88; C09K011-06; H05B033-14; H05B033-22

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and
Other Related Properties)

Section cross-reference(s): 27

IT **354135-64-1P 354135-69-6P**
(manufacture of biscarbazolylbiscarbazyl hole-transporting agent
for
electroluminescent device with high thermal stability)

L14 ANSWER 37 OF 40 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:468675 HCPLUS

DOCUMENT NUMBER: 135:233551

TITLE: Diphenylthienylamine-Based Star-Shaped
Molecules for Electroluminescence Applications
Wu, Iuan-Yuan; Lin, Jiann T.; Tao, Yu-Tai;
Balasubramaniam, E.; Su, Yi Zhen; Ko,
Chung-WenCORPORATE SOURCE: Institute of Chemistry, Academia Sinica,
Taipei, 115, TaiwanSOURCE: Chemistry of Materials (2001), 13(8),
2626-2631CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Star-shaped compds. containing a triphenylamine as the central core
and 3 diphenylthienylamines (NAr₁Ar₂(th)): 3a, Ar₁ = Ar₂ = Ph; 3b,
Ar₁ = Ph and Ar₂ = 3-tolyl; 3c, Ar₁ = Ph and Ar₂ = 1-naphthyl; 3d,

NAr₁Ar₂ = carbazolyl) as the peripheral functional groups were synthesized and characterized. These compds. exhibit 4 successive reversible 1-electron redox processes except for 3d in which only two 1-electron reversible oxidation waves are observed. The compds.

3a-d

can be used as hole transport materials, and **electroluminescent** devices ITO/3/Alq [tris(8-quinolinolato)aluminum]/Mg:Ag **emit** green **light** characteristic of Alq. The device ITO/3d/BCP (bathocuproine)/Alq/Mg:Ag is blue emitting, in which 3d is the luminophor.

IT

358722-04-0P

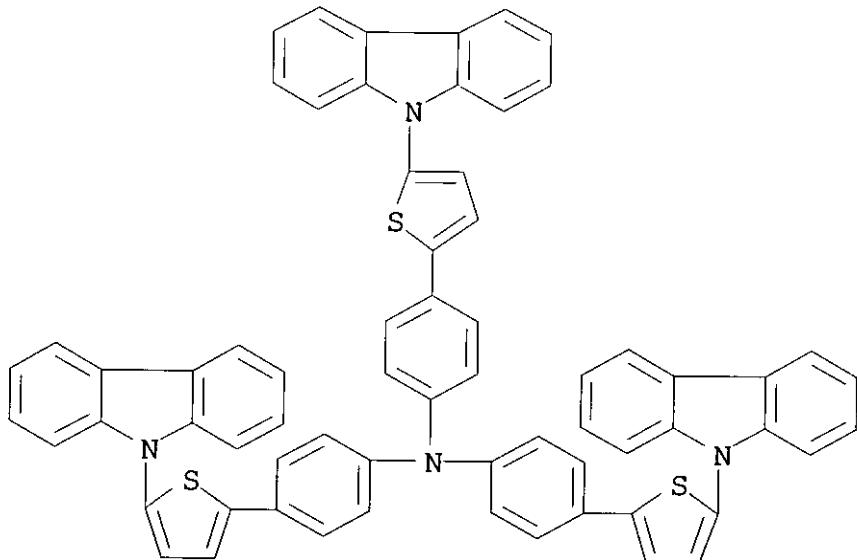
(phenylthienylamine-based star-shaped mols. for electroluminescence applications)

RN

358722-04-0 HCPLUS

CN

Benzenamine, 4-[5-(9H-carbazol-9-yl)-2-thienyl]-N,N-bis[4-[5-(9H-carbazol-9-yl)-2-thienyl]phenyl]- (9CI) (CA INDEX NAME)



CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 72, 76

IT 358722-01-7P 358722-02-8P 358722-03-9P **358722-04-0P**
(phenylthienylamine-based star-shaped mols. for electroluminescence applications)

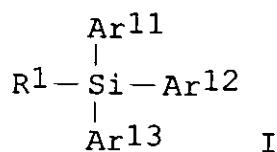
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L14 ANSWER 38 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2000:887759 HCAPLUS
 DOCUMENT NUMBER: 134:63641
 TITLE: Silane compounds and luminescent materials
 INVENTOR(S): Igarashi, Tatsuya; Taguchi, Toshiki
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 30 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000351966	A2	20001219	JP 2000-70609	2000 0314
US 6310231	B1	20011030	US 2000-543749	2000 0405
PRIORITY APPLN. INFO.:			JP 1999-100416	A 1999 0407
			JP 2000-70609	A 2000 0314

OTHER SOURCE(S) : MARPAT 134:63641
 GI

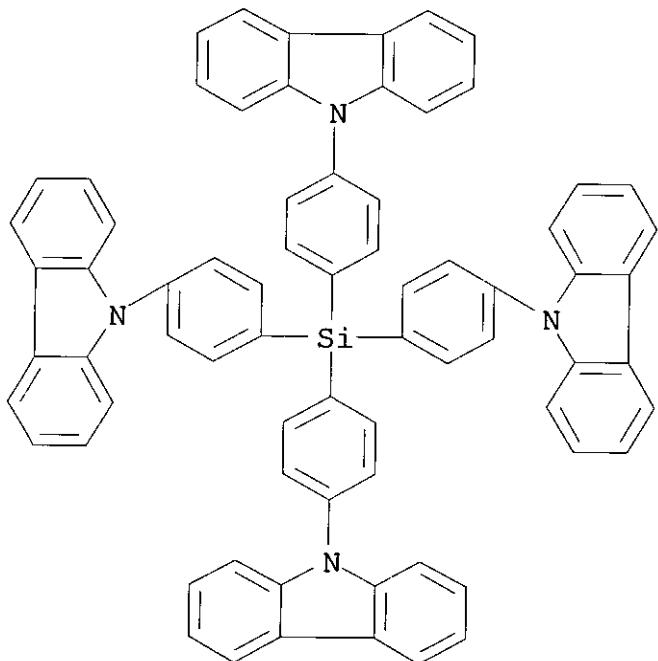


AB The invention refers to a high-efficiency, high-durability **organic luminescent** compound I [R1 = alkyl, aryl, heteroaryl, alkynyl; Ar11-13 = heteroaryl].

IT **313688-97-0P**
(silane compds. and luminescent materials)

RN 313688-97-0 HCAPLUS

CN 9H-Carbazole, 9,9',9'',9'''-(silanetetracyltetra-4,1-phenylene)tetrakis- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

CC ICS C09K011-06; C07F007-08; C07F007-10; H05B033-14; C08G077-60

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

IT 313688-96-9P **313688-97-0P** 313688-98-1P
(silane compds. and luminescent materials)

L14 ANSWER 39 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:555770 HCAPLUS

DOCUMENT NUMBER: 129:223051

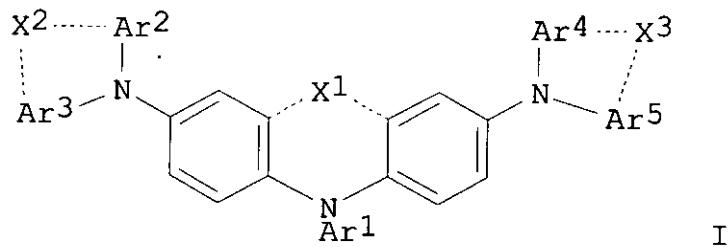
TITLE: Triamine compound and high-luminance organic field-effect electroluminescent device containing it

INVENTOR(S): Kawamura, Hisayuki; Hosokawa, Chishio
 PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10226785	A2	19980825	JP 1997-29938	1997 0214
JP 1997-29938				1997 0214

PRIORITY APPLN. INFO.:

OTHER SOURCE(S): MARPAT 129:223051
 GI



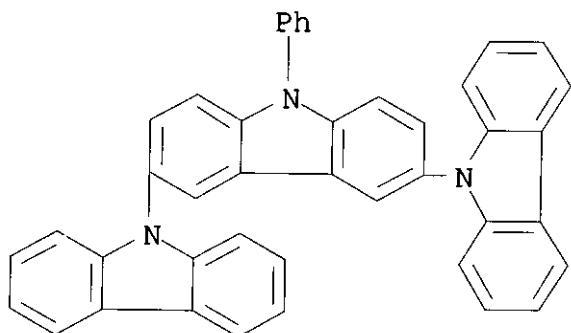
AB The triamine compound comprises I [Ar1 = (substituted) C6-18 aryl; Ar2-5 = (substituted) C6-18 arylene; X1-3 = single bond, O, S, (CH₂)_n, CMe₂; n = 1-6]. The device having an organic **light-emitting** layer contains I. I may be a hole-injecting or -transporting material. The device showed high luminance, good heat resistance, and long lifetime.

IT **211685-96-0P**

(triamine compound for organic field-effect electroluminescent device with good heat resistance)

RN 211685-96-0 HCAPLUS

CN 9,3':6',9'''-Ter-9H-carbazole, 9'-phenyl- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 25

IT 211685-93-7P 211685-94-8P 211685-95-9P **211685-96-0P**
(triamine compound for organic field-effect electroluminescent device with good heat resistance)

L14 ANSWER 40 OF 40 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:113320 HCAPLUS

DOCUMENT NUMBER: 126:164065

TITLE: Organic thin-film LED and manufacture thereof

INVENTOR(S): Nanba, Noryoshi; Nakayama, Masatoshi;

Nakatani, Kenji

PATENT ASSIGNEE(S): Tdk Electronics Co Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	-----
JP 08333568	A2	19961217	JP 1995-166954	1995
				0608
PRIORITY APPLN. INFO.:			JP 1995-166954	1995

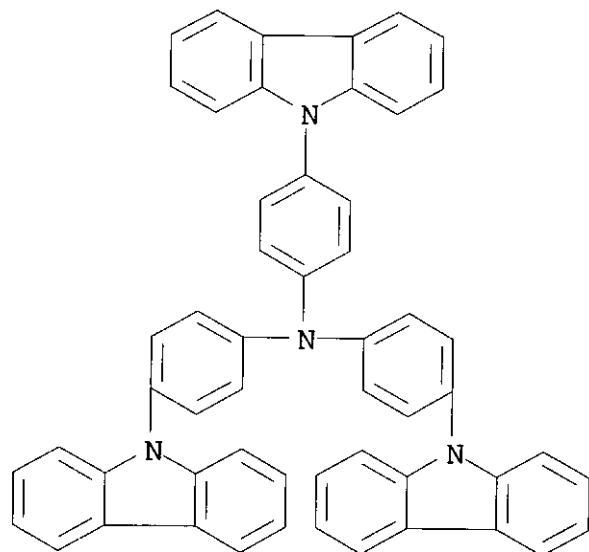
0608

AB A long-life LED comprises a hole-injection or a hole-injection/transport layer formed by glow-discharge polymerization of
 ≥ 1 monomer having 1-12 aromatic ring(s) interconnected by hole-transporting N-containing bridge(s).

IT **139092-78-7, 4,4',4'''-Tris(N-carbazolyl)triphenylamine**
 (manufacture of organic thin-film LED)

RN 139092-78-7 HCAPLUS

CN Benzenamine, 4-(9H-carbazol-9-yl)-N,N-bis[4-(9H-carbazol-9-yl)phenyl]- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

ICS H01L033-00; H05B033-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s) : 38

IT 62-53-3, Aniline, uses 603-34-9, Triphenyl amine 2085-33-8, Tris(8-quinolinolato)aluminum 7664-41-7, Ammonia, uses 7727-37-9, Nitrogen, uses 14118-16-2, N,N,N',N'-Tetraphenyl-p-phenylenediamine 65181-78-4, N,N'-Diphenyl-N,N'-bis(3-methylphenyl)-[1,1'-biphenyl]-4,4'-diamine 116153-35-6 123847-85-8 126717-23-5, 1,3,5-Tris(diphenylamino)benzene 138143-23-4, 1,3,5-Tris(3-methylphenylphenylamino)benzene **139092-78-7, 4,4',4'''-Tris(N-carbazolyl)triphenylamine**

THOMPSON 10/718,360

Page 162

151888-76-5 186256-01-9 186256-02-0 186258-38-8
187182-39-4

(manufacture of organic thin-film **LED**)

USHA SHRESTHA REM 4B28